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The Arboretum Bulletin

VOLUME XI WINTER, 1948 NUMBER 4

The Arboretum in the Fall

B. O. Mulligan

As we indicated in our summer report the greatest problem with which we have had to cope this season has been the constant and dense growth of weeds due to the abnormally heavy rainfall throughout almost the whole season. The months of August and September unfortunately brought little or no improvement in this respect; August, with a rainfall of twice the normal (1.44 instead of 0.70 inches), accompanied by an exceptional deficiency of sunshine (21% instead of a normal 59%), was followed by 3.07 inches of rain in September (normal 1.77 inches), although of this 1.41 inches fell on one day, the 26th, and the first half of the month was almost dry.

The removal and clearance of this weed crop has consequently occupied most of the time and energies of the staff, especially from the beds along Azalea Way, on the slopes around Rhododendron Glen, in the plantings of Japanese Quinces opposite the end of Miller Street, and in the lower area northwest of this, between the Boulevard and Union Bay.

Most of the planted beds, after cleaning, have been mulched with sawdust, following our previous practice, greatly improving their appearance as well as restricting and delaying later weed growth. The planting of Lapponicum and Triflorum Rhododendrons on the south bank of the Glen had to be entirely lifted to remove the roots of horsetail which had penetrated throughout the bed and grown up amongst the plants, although prior to the breaking up of this ground last winter no horsetail had been seen on this bank. The large bed of junipers near the crabapples in the Montlake section was thoroughly cleaned of "morning-glory" *(Convolvulus)*, both stems and roots as far as possible, and the bank between the Boulevard and Pinetum, south of the bridge, also cleared of brambles and other untidy native growth.

The tractor has, as usual, been very fully occupied, not only in the regular grass and hay mowing, and in raking the hay, but also in preparing ground for sowing grass seed, in discing and tearing up the growth of young brambles on the old city dump site, and subsequently in again ploughing and afterwards cultivating this section—a particularly tough job due to the stones, metal, slabs of concrete and other obstacles buried in the ground. It is, however, essential that this area should be worked as much as possible in order to have it, or at least parts of it, available for planting at the earliest possible date. Sawdust has been stockpiled here through the summer, and will be spread over and worked into this humus-deficient land. Compost heaps have also been in formation during the same period, and will be invaluable at planting time.

Most of the areas sown to grass during the fall are beside the Upper Road; on its west

side, towards the south end, around the group of young plane trees in the space allotted to the holly collection; on the east side facing the last, where some of the Hamamelis family are already planted, and north of the Glen over the large area to be devoted to the Leguminosae (Pea) family. Across the road, opposite the Cistus group, we have sown a grass path through the young planting of tree peonies, to make access easier to it either from above or below.

The one area sown elsewhere is the filled site of the old canal bed at Montlake, which required considerable work beforehand in raking and levelling, and was subsequently not improved by the passage of many football fans across it on their way to and from the stadium on several occasions. We shall probably have to await the spring before knowing the result of our labor there.

One man has been constantly employed in the nursery, in removing the worst weeds, especially "morning-glory" and horsetail, in laying a drain across the slope to carry off surplus water, and in mulching the rows of young plants, to which a considerable number was added during September and October. An invoice has also been made of existing stocks, including rhododendrons.

Larger drainage operations have had to be undertaken in a very wet triangular piece of ground between Azalea Way and the Garrett Memorial planting to the east. Old drains, insufficient for the work, have been opened up and new trenches cut in which tile drains will be laid and covered with crushed rock, a process which it is hoped will eventually improve the area enough to make planting with azaleas and rhododendrons possible.

On the other side of Azalea Way, slightly to the north, an elongated piece of ground has been ploughed with a view to eventually planting it with azaleas, but although the soil is evidently rich in humus it is also clear that horsetail is again going to be a major problem before we can plant in safety. The site is conspicuous from the Boulevard and should be planted for effect from a distance, both for spring and fall color.

Plantings

These have so far been few this fall but preparations are being made to steadily increase them. A collection of eleven varieties of *Colchicum* hybrids was planted at the upper, eastern end of Woodland Garden in August, some of which flowered during September. The number of lilies on the banks facing the head of Rhododendron Glen has been considerably increased, both in variety and kind, including now *L. auratum, L. Henryi, L. Willmottiae, L. umbellatum* var. *erectum, L. philippinense* var. *formosanum,* and the hybrids *L. princeps* and *L. Maxwill.*

A dozen tree peonies have been added to the collection, including the yellow-flowered species *P. lutea;* examples of the Southern Balsam Fir *(Abies Fraseri),* and the Black Spruce *(Picea mariana),* placed amongst their respective groups, and for color in the fall several plants of the sour-wood or sorrel-tree *(Oxydendrum arboreum)* close to the picnic tables and Upper Road at the northern end of the Arboretum, with the Shining Sumach *(Rhus copallina)* around them.

Plans

Mr. Hansen has now completed the planting plan of the area immediately north and west of the bridge over the Boulevard, where camellias, hydrangeas, scarlet oaks, and during the summer months fuchsias are the chief features, with rhododendrons on the bank in the rear.

He has also drawn up a plan of the area at the north end of the Arboretum surrounding the head of the lagoon, and the road approaching the entrance to Broadmoor, a section which we expect to improve considerably during the winter by removal of many of the alder and willow trees and other vegetation on the banks, for which purpose many residents of Broadmoor have contributed to a substantial fund.

In addition, more work has been done on the plan of the Leguminosae area on the east

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Tree of native dogwood *(Cornus Nuttallii)* in flower September 30, 1948 at head of Rhododendron Glen. Western hemlock *(Tsuga heterophylla)* behind dogwood and *Thuja plicata* to right.

side of the Upper Road, so that planting can be continued whenever weather and labor priorities permit. Lately his attention has chiefly been given to the design of a new camellia garden beside this road, on the south side of Rhododendron Glen, to provide an outlet for the many young specimens now awaiting planting in the lath-house, as well as others too overcrowded in earlier plantings.

Visits and *Talks*

The Director attended the 50th annual convention of the American Institute of Park Executives, in conjunction with that of the American Association of Botanic Gardens and Arboretums, held in Boston from October 2nd to 6th, 1948. The opportunity was taken at the same time to visit a number of other arboreta and botanic gardens, including en route, the Morton Arboretum of 800 acres near Chicago; the world-famous Arnold Arboretum at Jamaica Plain, near Boston; the Hunnewell Arboretum, Wellesley, Massachusetts; Morris Arboretum of the University of Pennsylvania, Swarthmore College Horticultural Foundation, Barnes Arboretum and Tyler Arboretum, all near Philadelphia; the 400-acre National Arboretum at Washington, D. C., and the Plant Introduction Station of the U. S. Department of Agriculture at Glenn Dale, Maryland; finally, the old-established Missouri Botanical Garden at St. Louis, and the more recent very large (1600 acres) arboretum at Gray Summit, about 32 miles west of the city, belonging to this Garden.

It is hoped that one result of these visits will be the establishment of considerably closer relations between our several institutions, as well as the increased knowledge of what plants are grown or can probably be grown in different areas, and where they may be obtained, besides details of organization, administration, buildings, equipment, labeling methods, publications, and similar pertinent facts of mutual interest.

At home, Mr. Hansen spoke to the newly reorganized Phyllis Ballard Unit No. 12 on October 26th, whilst on the same date the Director took members of Arboretum Unit No. 15 on a tour of the more interesting fall features in the Arboretum. In September the Director gave a talk on Ericaceous plants at the regular monthly meeting of the local branch of the American Rock Garden Society, and in October showed a collection of colored slides of rhododendrons flowering this year in the Arboretum to a Seattle meeting of the American Rhododendron Society. In the same month these and other Kodachrome slides made in the Arboretum were exhibited to about forty members of the Tacoma (Wash.) Garden Club. They were also shown in Boston at a dinner meeting of the A. A. B. G. A.

Acquisitions

(a) *Plants:* Some of the more interesting and unusual include the hybrid *Buddleja Lewisiana (B. asiatica x B.* [*Nicodemia*] *madagascarensis)* from the New York Botanical Garden; fourteen further new varieties of hybrid azaleas from the U. S. Plant Introduction Station at Beltsville, Maryland, raised by Mr. B. Y. Morrison; six plants of the Foxtail Pine *(Pinus Balfouriana)* from the Pacific Northwest Forest Experiment Station at Carson, Washington; seedlings of *Rhododendron sinogrande* and *R. Edgeworthii* from Mr. Lester Brandt of Tacoma, Washington; of the Cotton Gum *(Nyssa aquatica)* from southern Missouri, sent us by Mr. Fred Meyer, Missouri Botanical Garden, St. Louis; plants of the recently selected Ceanothus hybrids, "Mountain Haze" and "Sierra Blue," from Dr. V. T. Stoutemeyer, of the University of California, Los Angeles; a collection of five kinds of ferns for Woodland Garden from Mr. and Mrs. W. A. Fisher of Seattle; and plants of nineteen varieties of Japanese tree peonies, bought to add to the growing collection.

(b) *Seeds:* Through the courtesy of the New York Botanical Garden we have continued to receive a varied selection of seeds collected by Capt. Kingdon Ward in Manipur, between Assam and Burma. From the National Botanic Garden, Kirstenbosch, South Africa, came seeds of five species of native heathers, as well as of other South African plants which may grow outdoors here. Eucalyptus seeds have been received from both Australia (five species) and Tasmania (three species), some of which have already germi-

(Continued on Page 33)

The Royal Botanic Gardens, Kew

W. Dallimore*

History

THE village of Kew has been renowned for its horticultural and botanical activities for a very long period and the botanic garden has existed under the system of management as at present understood for upwards of a century. But long before that time a botanic garden at Kew formed part of the establishment of the reigning monarch. Even earlier than that, part of the site of the present establishment was occupied by a famous garden, as we are reminded by entries by John Evelyn in his famous "Diary." Writing in August, 1678, he describes a visit to Sir Henry Capel's garden at Kew and records that "Sir Henry had the choicest fruit of any in England," and again on February 24, 1688, writing about the same garden, how he saw "two greenhouses there used for oranges and myrtles." Looking still further back, William Turner, author of one of the earliest Herbals, who became known as "the Father of English Botany," lived in Kew. He died in 1568 but unfortunately the position of his garden is not known. It will thus be noted that Kew has for a very long time been a center of plant study.

After the death of Sir Henry Capel the garden attached to Kew House—which stood immediately to the south of the present Kew Palace—passed through various vicissitudes and had deteriorated very considerably, when, in 1730, the house was leased to Frederick, Prince of Wales, son of George II. He was interested in horticulture, and under his direction the garden soon regained its former renown and became one of the best appointed gardens in the country. He died in 1751 but his widow, Princess Augusta of Saxe-Gotha, continued his good work and went further. She was interested in the scientific side of plant life and established a botanical garden on a few acres of the demesne in the vicinity of the present main entrance to the Gardens from Kew Green. A few of the trees planted during those early days still remain. Her botanical garden was started in 1760 and the Princess had for her botanical advisor the Earl of Bute, with William Aiton as curator. At that time the practice obtained of decorating gardens and grounds with temples commemorating various mythological deities and other structures, and Princess Augusta engaged an eminent architect, Sir William Chambers, to decorate her grounds with such buildings. The finest of all, a Temple to the Sun, was destroyed in a gale in 1916, but several still remain, the most conspicuous being a pagoda which was completed in 1762. Its total height is 163 feet and it can be seen over a wide area. I mention this as it is the object of many questions.

On the death of Princess Augusta, King George III, with the help of Sir Joseph Banks, who acted as his honorary director, and the curator, William Aiton, added very considerably to the collections of plants grown in the Botanic Garden, while various adjustments were made to bring the grounds of Kew House into union with the Royal Gardens of Kew and Richmond. It was during this period that the practice began of sending men to far-away countries to collect living plants and seeds to add to the collections, and dried specimens for the herbarium that was being formed by Sir Joseph Banks. This was continued until the death of George III in 1820, though for several years Sir Joseph Banks had to act on his own initiative.

From 1820 for two decades the botanic garden went through a period of deterioration as the scientific study of plant life did not appeal to either of the succeeding monarchs, George IV or William IV, and their advisors seemed to consider the money required from the privy purse for the maintenance of the botanic garden to be wasteful. But it was not until Queen Victoria succeeded to the throne in 1837 that matters were brought to a head. In 1838 a Committee of Inquiry was appointed to consider the management of the place and to advise whether it should be continued as a botanic garden or not. By then the botanic garden had increased in area to fifteen acres, and it included several glass houses.

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*Mr. W. Dallimore, I.S.O., V.M.H., was formerly Keeper of the Museums, Royal Botanic Gardens, Kew, and Hon. Curator, National Pinetum, Bedgebury, Kent.

Eventually, in 1840, it was decided that the botanic garden should be retained but under entirely new management, and instead of being more or less a private concern financed by the reigning monarch from his or her privy purse, should become a public institution financed by an annual grant from H. M. Treasury. At the same time a great deal more land was made available from the Royal property in Kew and Richmond and from the fusion of land attached to various houses; thus the plural, Royal Botanic Gardens, came into use. To maintain certain rights over the property a few persons of royal lineage enjoy certain concessions. One is that they may ride on horseback or in a carriage through the Gardens. Further, the Gardens must be closed to the public one day each year. The chosen day is Christmas Day.

In March, 1841, Dr. (afterwards Sir William) Hooker was appointed director of the Gardens under the new regime. In order that there should be ample space for development a considerable area of garden and farm land was placed under his control and the present area of approximately 288 acres became available.

He was a very competent person and immediately set about planning to build up what was destined to become one of the most famous gardens in the world; so well were his plans laid that it was not found necessary by subsequent directors to make any really fundamental changes to bring the place into line with modern requirements. Many minor changes have been necessary but the underlying principles are those of Sir William Hooker.

Present Day Management

The institution is divided into three principal departments, each one under a separate head with the director (at present Sir Edward Salisbury, F. R. S.) and his assistant, who act as administrators under the Ministry of Agriculture and Fisheries, in full control. The three departments are: the Herbarium and Library, with a keeper as its head; the Museums of Economic Botany, and Picture Gallery, also with a keeper as head; and the Gardens, with the collections of living plants and business office under the control of a curator.

The Herbarium is staffed by botanists who must be conversant with the systematic arrangement of plants of the world. They prepare floras of various countries, name and describe new species of plants, and advise generally on botanical questions. They have under their charge some 5,000,000 dried specimens of plants and a very comprehensive library of botanical and horticultural books.

The Museums are staffed by economic botanists who must acquire a knowledge of the products of plant life throughout the world, markets, etc. They have also to advise about the transfer of particular crops from one part of the world to another. Sir William Hooker, as one of his earliest duties, established Museums of Economic Botany at Kew which are regarded as the pioneers of this branch of botanical science.

The curator of the Gardens is assisted by two principal assistant curators and three assistant curators. One of the principal ones must be available to act in the absence of the curator. Between them they have control of at least 25,000 species of plants received from all parts of the world.

The assistant curators actually look after the cultural work of the place and the work of the men, the curator being confined very largely to his office. The plant collections are divided up as follows: Those requiring warm or tropical house cultivation are grown in a series of glass houses, some of which are set apart for definite groups such as palms, ferns, orchids, succulents, water lilies, insectivorous plants, and plants of economic value. The largest is that reserved chiefly for palms and cycads. It is 66 feet high in the center, and six miles of hot-water pipes are required to maintain the necessary temperature. These

(Continued on Page 30)

History of the Camellia on the Pacific Coast

A. E. Morrison*

THE attractiveness of our gardens, parks street and roadside plantings has been made possible by the wide selection of trees, shrubs and flowers which were first introduced into our arboretums, nurseries and gardens by members of exploring parties. Even the hard-boiled sea captains of the early-day sailing vessels took a keen interest in the transporting of exotic plants from foreign shores.

The camellia, described by James Petiver, an English apothecary in his "Gazophylacium" published in 1702, was among the plants so introduced into Europe. Interest in this plant did not develop to any extent until after 1792 when a number of the double varieties became known. By 1820 it had become a garden favorite throughout Europe and also in the United States in the vicinity of Boston, New York and Philadelphia where a number of outstanding varieties were developed, many of which were sent to Europe where they were introduced. Several nurseries in these cities featured camellias and listed a number of varieties in their catalogues. Among these was Warren's Floral Saloon in Boston and Warren's Garden and Nurseries, Nonantum Vale, Brighton, near Boston. His catalogue of 1845 lists eighty-seven named varieties with mention being made of a number of unnamed seedlings. Mr. James L. L. F. Warren, the proprietor, became interested in two seedlings, "Mrs. Abby Wilder" and "Wilderi," developed by Mr. Marshall P. Wilder, President of the Massachusetts Horticultural Society. These were purchased by him in 1847 for $500.00 each and, disposing of his nursery, he took them to Europe.

This was the period during which a steady movement of pioneers to the Pacific West Coast was taking place, and with the discovery of gold near Sacramento in January of 1848, attention of the world became focused on California. Not all of the persons who joined in the gold rush were interested entirely in mining. One of these men was Mr. Warren, who started a business in Sacramento in 1851 catering to the miners' trade. This was extended, and the Warren & Company New England Seed Store was established. Warren's interest in agriculture and horticulture became paramount and, considering his background, it was not surprising to find the following advertisement appearing in the Sacramento Union under date of Febraury 7, 1852:

> "TO FARMERS AND GARDENERS:
> 3000 pounds of Fresh Garden Seeds,—We have received by the Panama, the finest lots of fresh Garden Seeds to be found in the country. OUR SEEDS ARE WARRANTED FRESH. The assortment contains every kind of seed; many of them entirely new varieties, and to be found nowhere else in this country. Also 3,000 paper FLOWER SEEDS, of new and beautiful kinds, HERB seeds of every valuable kind.
> A splendid set of Dahlia Roots, Roses, CAMELLIAS, Grape Vines, Bulbous Roots, etc., will be ready for examination in our hall over the store, on Monday.
> Warren & Co.'s New England Seed Store
> J Street near Levee."

The Panama mentioned in this advertisement was a steamship operated by the Pacific Mail Company between San Francisco and Panama. Marine Intelligence, covering the arrival of this boat, lists it as arriving in San Francisco "from Panama via Acapulco and San Diego carrying 484 passengers and 40 females."

This advertisement by Warren & Co.'s New England Seed Store is the earliest printed information concerning camellias in California. Specific varieties are not mentioned; however, subsequent articles in Mr. Warren's *California Farmer* indicate that at least the following varieties were included in the first shipment: "Alba Plena," "Fimbriata," "Mrs. Abby Wilder," "Wilderi" and "Lady Hume's Blush."

The origin of the shipment has not been established but it may have been made from some of Mr. Warren's connections in the vicinity of Boston. It most likely moved by boat down the East Coast, transported across the Isthmus of Panama and then loaded on the *S. S. Panama* for San Francisco and by river boat to Sacramento.

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*Mr. A. E. Morrison, director of the American Camellia Society, is Agricultural Commissioner of the Sacramento County Department of Agriculture, Sacramento, California.

Mr. Warren's faith in the West Coast as a camellia-growing center has been substantiated. His prediction in 1853 that "This truly magnificent plant unsurpassed in loveliness will ere long become acclimated with us to form our pride as an ornamental tree in our gardens" has been fulfilled. A nursery catalog issued by his firm in 1853-54 carried the statement that "we are now constantly receiving collections from the best establishments in Europe and the States; and our collection will be unequalled. The proprietors have just received a new and superb collection of rare kinds, from the most celebrated growers in Europe. A separate sheet catalogue will be issued in the autumn of 1854, giving a description of their character, etc., with their prices, etc."

Mr. Warren's interest in agriculture led to the holding of annual displays of horticultural products in his show rooms in Sacramento as well as in San Francisco, where his activities were being transferred. These expositions led directly to the establishing of the California State Fair, the first one of which was held in San Francisco on October 6, 1854. It is not a surprise, considering this man's background, to find camellias listed in the floricultural section of this Fair with the following varieties of plants being displayed: "Double White," "Fimbriata," "Candidissima," "Caleb Cope," "Duchess d'Orleans," "Double Red" and "Lady Hume." The "Lady Hume" is mentioned as being in flower.

Camellias were offered for sale in San Francisco as early as February 2, 1854. Two nurseries advertised camellias during the year with one nursery mentioning having seventy varieties.

Eastern nurseries became interested in soliciting business on the West Coast and during the period between August, 1856, and 1858 three such nurseries inserted advertisements in Sacramento and San Francisco newspapers. They were: Linnaean Botanical Garden and Nursery, Flushing, New York; Hovey & Co., No. 7 Merchants Row, Boston, Massachusetts, and Parsons & Company, Flushing, New York.

The plantings of camellias on the West Coast during the nineteenth century were limited mainly to specimen plantings with very few individual collections being made. The Smith Gardens at Sacramento in 1858 contained over forty varieties and a few plantings in the San Francisco area may have equalled or exceeded that number.

The oldest specimen of which a definite record has been maintained was planted in 1860 about twenty miles below Sacramento and continues to be a consistent bloomer. Other specimens may be older but records of their planting are not available. The largest specimen in California has reached a height in excess of twenty-eight feet. It is approximately eighty years old.

It is indeed unfortunate that in the rapid spread of interest in a plant like the camellia authentic records of early plantings become lost. It is extremely difficult, in too many instances, to determine exactly when an introduction was made.

There are many old speciments of camelilas still growing in the West which are living ties with an interesting historical period of our development.

The Following Twenty Varieties of Camellias are especially recommended for Pacific Northwest Gardens. These were selected from a questionnaire sent to the following camellia growers: Mrs. O. B. Thorgrimson, Seattle; Mr. Endre Ostbo, Bellevue, Wash.; Mr. Donald Graham, Seattle; Mr. H. H. Harms, Portland, Oregon; Mr. Clarence Prentice, Seattle, and Mr. Theodore Van Veen, Portland, Oregon.

Adolphe Audusson
Anne Lindbergh
Chandleri elegans
C. M. Hovey
Daikagura
Daitarin
Debutante
Donckelari
Fimbriata superba
Finlandia
Flame
Grandiflora rosea
Julia Drayton
Kumasaka
Lotus
Mikenjaku
Reticulata
Te Deum
Ville de Nantes
Victor Emmanuel

The New Hybrid Camellias

W. Arnold-Forster*

ON READING Dr. H. Harold Hume's valuable book on "Camellias in America," I noticed that nothing was said about the new hybrids between species of camellias, which have been raised in England in recent years. So I ventured to write to Dr. Hume about these hybrids, which are bringing a new wealth of beauty into English gardens, and when he visited England in July-August, 1948, he went to much trouble to see these plants growing, and also colored photographs of them in flower. When he was starting on his return journey to Florida with a stock of camellia plants and cuttings, he told me he felt sure that these hybrids would make a big contribution to camellia growing in the United States. I feel confident that this is true. So here is an indication of what American gardeners may look forward to when these forerunners of a new race of camellias become available.

During this century the repertory of camellias has been enriched by the introduction of two outstanding species, *C. saluenensis,* and *C. reticulata* in its wild single-flowered form. (See page 10.) *Saluenensis* is a delightful shrub, though it has serious drawbacks, and as a parent of hybrids it has already proved of extraordinary value. Forrest found it in 1917 at altitudes of between 7000 and 9000 feet in thickets and scrub, generally on steep, stony hillsides, near Tengyueh, in Yunnan, southwest China, where the mountains divide the Salween from the Shweli river. It makes an evergreen bush from 9 feet to 15 feet high. The leaves are glossy, finely toothed, pointed; smaller than those of *C. japonica.* The flowers of plants from which Forrest collected seed ranged from crimson to white, but the prevailing color is light or deep rose-pink. Most of the plants are extremely free-flowering, and the season lasts a long time, from January until late April in English gardens.

Good plants of this valuable shrub deserve a place amongst the treasures of our gardens; they have a wild-rose grace and a persistence of flowering which none of the varieties of *C. japonica* can emulate. But it is a more tender plant than *C. japonica,* so that it is liable to suffer from frost in England except in the milder counties, and in the United States can be grown out-of-doors only in the limited areas where severe frost need not be feared. A further drawback is, that in many of its forms, the flowers are apt to be flimsy and rather short-lived.

C. saluenensis has already been crossed in England with at least three other species, *C. japonica, C. cuspidata,* and *C. reticulata,* and with *C. reticulata semiplena* (the semi-double garden plant which was long supposed to be the typical *reticulata).* Whether it has yet been crossed here with *C. Sasanqua* or *C. oleifera,* I do not know.

C. saluenensis x C. japonica

The most important of these crosses, so far, has been the one with *C. japonica.* The late Mr. J. C. Williams of Caerhays Castle in Cornwall, who was one of the original recipients of Forrest's seed of *C. saluenensis,* was quick to realize the possibilities of this cross, and out of his very numerous hybrid seedlings he selected two. One of these was named "J. C. Williams" after his death, and in March, 1942, received the First Class Certificate of the Royal Horticultural Society; the other, named "Mary Christian" after his wife, won an Award of Merit at the same time.

Camellia (C. japonica x *C. saluenensis)* "J. C. Williams," to give it for once its full botanical name, makes a sturdy fast-growing bush about nine feet high. The leaf is midway in character between the parents' leaves, deriving its smoothness from *japonica* and a smallness from *saluenensis.*

The flowers are full pink in bud and pale rose-pink when expanded. The petals, generally about eight, open widely and cover

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*Mr. W. Arnold-Forster has a well-known garden in Cornwall, southwest England, and is author of a recently published book, "Shrubs for the Milder Counties."

about four inches across. The stamens stand up in a crown, yellow-tipped when fresh. The flowers are more durable than those of *saluenensis,* and though they fall off sooner than one would wish, they have the tidy habit of falling off intact when their time is up. (See page 10)

The plant has three outstanding merits, besides the rare freshness and beauty of its flowers. It is extraordinarily free and persistent in flowering; it is much hardier than *saluenensis,* and it thrives (at least in England) as well in full sun as in full shade. It begins flowering in England in January, and continues, not in ineffective outbursts but in full display, till the end of April. The terminal shoots carry three or four buds, and besides these there are axillary buds. As for hardiness, it has been found in North Wales that plants in the open stand a zero (F.) frost without losing a leaf or flower bud. If the open flowers do get browned by a sharp frost, they are replaced very quickly by the opening of buds. The shrub is not difficult to propagate by cuttings (unlike *C. reticulata),* and it sometimes bears fertile seed.

C. "Mary Christian" is very similar, but is worth growing in addition to "J. C. Williams." Perhaps the flower is not quite so well opened, but the axillary buds are even more numerous, so that flowering is even more persistent.

Other forms of the cross, selected at Caerhays, include "St. Ewe," a deep pink one; "Michael," with large flowers opening almost white, and an unnamed seedling which has a faint, delightful scent of cowslips.

C. "Donation," still a very rare plant, is a cross between *saluenensis* and that fine old *japonica* variety *Donckelarii.* It has cool pink double flowers with the starry, regularly built-up shape of *Donckelarii.*

No doubt these first fruits of marriage between *saluenensis* and the many forms of *japonica* will be followed by many others raised in America and elsewhere as well as in England.

←

Left . . . Camellia "J. C. Williams", by courtesy of *Country Life,* from "Shrubs for the Milder Counties," by Arnold-Forster.

Right . . . *Camellia reticulata* (wild type) salmon pink form.

C. saluenensis x *C. cuspidata*

Now I come to the marriage between *saluenensis* and *cuspidata.* This latter is a disappointing plant, pretty in foliage but ineffective in flower, since the white flowers, 1½ inches across, fall too quickly. But the cross with *saluenensis,* made by J. C. Williams, yielded one of the best white camellias, "Cornish Snow." This makes an upright bush, slender but strong, graceful in carriage. The flowers, about 2 inches across, are pure white, cupped, with yellow centers, not too fugitive, and extremely profuse for a long season in spring. This plant can be propagated by cuttings.

C. saluenensis x *C. reticulata semiplena*

The crossing of *C. saluenensis* with *C. reticulata semiplena* yielded "Salutation," for which Colonel Stephenson Clarke won an Award of Merit as long ago as 1936. The flowers are large, light pink, semi-double, with waved petals, recalling the flowers of an old-fashioned rose such as the semi-double form of *Rosa alba.* (Illustrated in the Royal Horticultural Society's Journal, June, 1948.)

C. saluenensis x *C. reticulata*

C. saluenensis has recently been crossed, at Exbury, Hants, with *C. reticulata,* the wild single-flowered type, which first flowered in England at Caerhays in 1932. This hybrid (if it be indeed a hybrid) is called "Inamorata," and has single flowers of a uniform rose-pink, 3 to 4 inches across. (Illustrated in the RHS Journal, Sept., 1948.)

Other saluenensis crosses

So much for the crosses of *saluenensis* already made and proven. I hope that, amongst those that will be tried, the following will be included. I should like to see the offspring of *C. saluenensis* x *C.* "Jupiter," the latter being a very fine single red *japonica.* I should like to see crosses made with good forms of *Sasanqua* such as "Mine-no-Yuki" (grown in California under the name "White Doves," I believe). In particular it would surely be worth trying to get scent into this race, by crossing *saluenensis* with the fine plant now called *C. Sasanqua* var. *oleifera,* which has large white flowers opening flat in late autumn, with a stronger and more pleasant scent than that common in *C. Sasanqua.*

Others

I do not know if the hybrid between *C. japonica* and *C. Sasanqua* is grown in America. It is called *C. vernalis,* and is a good early flowering plant with well-pruned, smallish, semi-double, white flowers.

Seed of *C. reticulata* is producing some of the most beautiful camellias I have seen: large, single flowers of glowing colors, perfect shape, and remarkable substance and durability. The plant is a very vigorous upright bush, reaching 30 feet or more. In some inferior forms its flowers remain half tubular in shape, but in others the petals open wide, four inches across or more, deep rose, and in one case salmon-pink. (See page 10)

Camellia Propagation

(United States)

PAUL E. DOTY*

CAMELLIAS are propagated mainly for one of three purposes—to create new varieties, to reproduce existing varieties, or to convert unwanted varieties into varieties which are more desirable.

Methods of propagation may be from seed, from cuttings, by graftings, or by layering. Layering is a method seldom used, and perhaps of little value except to a hobbyist. It is through the propagation by seed that many of our new varieties have been created. This again is mainly work for the specialist, for much time and patience is required to bring a plant up to the blooming stage. The average seedling will not bloom under seven years of age; many take longer. One may plant a hundred or a thousand seedlings and when the blooms finally arrive, find that there is only one variety, perhaps none, producing outstanding flowers. Seedlings do have value, however, both as ornamental shrubs in the garden and as grafting understocks.

Of methods used to reproduce existing varieties, propagation by cuttings is by far the most prevalent. Grafting has certain definite advantages; but since it is a more expensive operation than growing from cuttings, it is used mainly to speed up the reproduction of new varieties, to get the maximum number of plants out of a variety where grafting or scion wood is scarce, and, as mentioned above, to convert to better varieties certain plants not wanted.

The purpose of this article is to set forth certain fundamentals in connection with propagation by cuttings and by grafting. While the subject is being approached by a commercial grower, these same fundamental principles apply whether the plants are being grown for general distribution to the public or by "Mr. Average Gardener," who is only intent on having a little fun.

The first and foremost thing for any propagator to learn and remember is that the best plants, as in the human race, are produced where health and cleanliness are given first consideration, both in parentage and in offspring. Select healthy, vigorous parent stock to take the cuttings from. While cuttings may be taken at almost any season of the year with varying degrees of success, the best percentage is generally obtained by taking the wood in the summer time. Seasonal growing conditions generally determine this time, but in the Pacific Northwest it is seldom before June 15, or probably July 1, that the wood is right. The terminal buds should have set and the wood attained a certain brittleness, which an experienced propagator will recognize at once by running the thumb and forefinger over the wood. Experience has taught that certain varieties propagate better earlier in the season, and others, later. For instance, a greater percentage of stand can be obtained from varieties like Mikenjaku and Goshoguruma if propagated as late as November. A cutting with three or four eyes below the terminal bud is to be preferred, if there is plenty of wood available. On the other hand, where wood is scarce, a single eye can be made to produce a plant. The cutting is made with a slanting cut, so that more of the cambium is exposed for making rooting surface.

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The use of hormones or rooting compounds has been found to be beneficial. In the case of the amateur, probably the powders are the easiest to use and are most to be recommended. However, many commercial growers continue to use liquid forms, such as indolebutyric acid in solution.

A sharp, coarse sand is probably the best rooting medium, although some growers prefer to introduce a certain amount of peat into the sand. It is essential that the sand be well packed both before the cutting is introduced and around the cutting after it is put in. For this purpose, a block of wood may be laid on the sand, and a hammer or mallet used on the wood to pound the sand down. An opening for the cuttings may be made by drawing a heavy bladed knife along a straight edge. Cuttings may then be inserted about one inch deep in this opening.

Assuming that the sand is thoroughly saturated before planting begins, it should never again be allowed to dry out until the cutting has developed roots and has been removed. Assuming that the sand beds are on benches in the greenhouse, it is advisable to use additional covering material over the cuttings, cheese cloth on frames being acceptable. Such covering should be removed after two to three weeks, or a dropping of leaves may occur. During the period of time required for rooting, an even and correct temperature is essential. Bottom heat, preferably electric, helps to maintain this even temperature, which should start out at about 45 degrees, and step up to 55 or 60 degrees, as the cuttings callous preparatory to making root. This may be from three to five weeks after they are planted. Varieties differ somewhat in their speed of rooting. Under proper conditions, from two and one-half to four months are required before the plants can be removed from the sand. They are then transferred to pots or flats, the soil mixture for their new home being made up of good garden loam, sand and peat. A good proportion would be twelve parts loam, eight parts peat and one part sand. Commercial fertilizer should never be used in soils thus prepared, but a small amount of cow manure, if old and well rotted, can be beneficial. Charcoal used in the soil is, however, extremely beneficial. The popular concensus of opinion is that charcoal sweetens the soil. Actually, it serves as a storehouse for certain chemicals and plant foods which are in the soil and air, releasing them only as the plant roots need them and can absorb them. Newly potted cuttings should be kept under glass until all danger of frost is over in the spring. They may then be brought out, but preferably kept under lath during the summer. In this way they are hardened off, so that by the time the first winter arrives they are able to stand the shock of cold weather.

In commercial growing of camellias, the same houses are generally used for grafting as for growing of cuttings. All cuttings should have been removed from the sand by the end of November or middle of December, except for unrooted cuttings, or resets, which may be placed in another bench. The sand is then removed from the benches and they are refilled with peat. The peat must be watered until it has an even moisture content throughout, not soggy, but completely moist, for from then on until the graft union has taken, no water is introduced to the bed. The same care should be used in selecting graft wood or scion wood from the parent plant, and a healthy, well-rooted understock, preferably not less than lead pencil caliper, should be selected. For conservation of space in the benches, a plant in a 2½ or 3-inch pot is to be desired, but this is not entirely necessary. The selection of variety used for understock is, however, quite essential. Many growers use *C. Sasanqua* for understock; others use seedlings. Probably the largest number of growers use certain varieties of *C. japonica,* which have been cutting grown. The selection of these varieties is something that can only come by experience. A certain understock may prove quite satisfactory for reproducing one variety, whereas the same understock will be entirely unsuited for another variety.

While there are many methods of making grafts, the two most generally used are side graft and cleft graft. The side graft is best used on stocks of smaller caliper. In this method, the knife is brought into contact with the bark of the understock about an inch above the pot level, and is brought downward for a half inch or so with a slanting cut, so that at the base of the cut, the knife has penetrated somewhat into the woody portion of the plant. This cut portion of the plant is then removed by either cutting directly in or slightly downward at the base of the first cut. The piece thus removed will be slightly wedge-shaped. The scion which is to be inserted is then cut with a long slanting cut, made to fit the now exposed portion of the understock. The scion and the opening in the understock are then fitted together as smoothly as possible, keeping in mind that there must be contact of cambiums at least on one side, and if the scion and understock are the same caliper, then the cambiums on both sides should be in contact. The scion is then firmly fastened to the understock by wrapping with either wax string, raffia or rubber grafting bands. The latter is probably preferred, since it provides flexibility when growth and expansion starts.

Plants are now placed in the grafting box or bed, pot to pot, canted slightly, at an angle of about thirty degrees, with the graft up. This is to lessen the possibility of moisture getting into the newly made graft. Pots are sunk in this peat bed to the depth of the pot, thus providing moisture through the pot throughout the period of graft development. The beds are then covered solidly with either glass or some other form of fairly transparent protective material. With the frames down tightly, transpiration occurs, due to the heat generated by the plants themselves, or by the electric or other bottom heat used. A sweating results, which is beneficial to the plants, but the moisture must not be permitted to drop down on the plants. To prevent this, the frames are carefully removed several times a day, and the moisture drained from them.

As soon as the union has taken place and growth of the scion has started, the frames should be raised a little to admit air, gradually at first, then more and more, until finally the frame may be removed completely and the plant exposed permanently to the open air of the greenhouse. Soon after this, it will be time to remove all of that portion of the understock which is above the point where the scion was inserted. This should be a clean cut, just above the union, and is one of the most delicate operations of all, since it is very easy at this stage to weaken the union and thus prevent the flow of sap up into the newly forming plant. The pots are now returned to the benches in an upright position and, since they are out of the peat, care must be taken that they are kept with the right moisture content at all times.

The new grafts may be kept in the greenhouse until spring, when it will generally be found that the root growth is sufficient to justify repotting them into a slightly larger size of pot. By about June 1, they are ready to be brought out into the lath house for hardening off.

Cleft grafting is to be preferred when the diameter of the understock approaches a half inch. By this method the main stem of the plant is cut off at whatever height is desired, normally at about an inch or so from the ground. It is then split with a sharp knife to a convenient depth for insertion of a scion. The scion is prepared for insertion by making a straight, smooth, wedge-shaped cut. The scion must then be inserted in the split so that, as in the case of the side graft, the cambium layers on one or both sides come in contact with each other. From then on, procedure is the same as for the side graft. Frequently, however, grafters prefer to use a cold wax

(Continued on Page 31)

The Propagation of Camellias*

(*England*)

Francis Hanger

THERE are various ways of increasing our stocks of camellias, and happily the majority of these lovely flowering evergreen plants are comparatively easy to propagate. The garden form of *C. reticulata,* and to a lesser degree the recently introduced wild form of the same camellia are the exceptions. These plants possess thicker shoots which do not produce roots readily from cuttings.

Seeds

Some of the newly introduced species are becoming quite large shrubs in the more favored gardens of this country, and during favorable flowering seasons produce good seed. When this is obtainable it provides an easy means of increase, as these species will come more or less true from seed.

With the hybrids it is quite the reverse. Should the seed of these be sown, the grower would not be able to perpetuate his hybrid. The seedlings may be good, bad, or indifferent. Naturally there is a chance of a seedling being an improvement on the parent, and to the adventurous this might make an appeal, but if new and better camellias are wanted from seed, hybridization is best carried out in a proper manner.

To those who have the time and the inclination, this is a most pleasant form of horticulture, and with the newer species becoming more common, there should be plenty of scope. . . .

It is advisable to sow the seed at once as soon as ripe, and should there be a plentiful supply it is best to use seed boxes, but if scarce the seed is best sown singly in small pots. Provide good drainage, and use a good acid mixture, *i.e.,* rich, peaty, leafy compost with a little silver sand added. The seed will germinate in the early spring, and speedily make good growth. Those sown singly in pots will be easy to manage as they will only need potting on as required, but the seedlings growing in the boxes will need early separating, to prevent the many roots becoming entangled. Camellias have very fleshy roots in their young stages and are easily broken, and should this happen many plants will suffer at potting time, with the possibility of casualties.

Propagation by Cuttings

As already stated, with the exception of the garden and wild forms of *C. reticulata;* camellias are very easily propagated from cuttings.

This statement is not generally accepted by nurserymen in the trade, many of whom still insist upon grafting as a means of increase, and usually place these lovely shrubs on the market as grafted plants. I feel sure that if time could be devoted to the insertion of the cuttings at the correct time, much less grafting of camellias would be practiced in our nurseries.

Plants grow from cuttings very quickly, and speedily overtake the grafted plant, thus defeating the nurserymen's claim that he must graft to produce a salable plant in the shortest possible time.

Much has been written on callus formation at the base of camellia cuttings and the benefits to be gained by paring off the surface of the callus. True it is that root development can be stimulated by this means but I wish to impress upon readers of this *Journal* the importance of taking their cuttings at just the correct time, when such cuttings will root easily in eight weeks and no trouble will occur through callus formation.

To obtain the correct type of cuttings the stock plants must be in a good healthy growing condition. From such plants growing in the woodland, good material for cuttings can be obtained during the month of July. At Wisley the third week of the month proved to be the correct time this past year.

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—Photo by N. K. Gould

Camellia japonica var. *magnoliaeflora*

The current year's growth should be taken when the wood is soft, yet not of a flopping softness, and the stem of the shoot is beginning to change from the soft green to the brownish shade of the more matured hardening of the stem. The correct balance of leaf to the cutting is important. Providing the foregoing instructions are carried out the new shoots will have developed three alternate leaves, and if pulled off with a heel attached no trimming will be necessary. The robbing of the parent of such cuttings can be overdone, and damage will follow if carried to excess, but with discretion many ideal shoots can be taken and still leave the parent plant in good shape and health. In a nursery all suitable cuttings could be taken from the stock plants, as flowering is a secondary consideration. The plants may then be trimmed up, and left to break again. To root camellias from cuttings it is not essential to have a heel attached, but I find it an advantage.

Camellias will, it is true, root from cuttings at almost any time of the year; whether they are placed in a frame with bottom heat, in a cold frame or under bell glasses in the open seems to make little difference to their power of root production. The difference lies in the fact that the softer cuttings taken as advocated and placed in a propagating frame with bottom heat root easily in two months and can be established in small pots before winter sets in.

Later cuttings taken during late September and early October and inserted in cold frames or with bottom heat take up to six months before they are rooted sufficiently to be ready for potting up singly.

Should the wood be very hard the cutting may remain stationary for twelve months or more before throwing roots. It is this hard type of cutting which develops a large callus needing paring, and in such extreme cases as this paring will be found beneficial and helpful in root production. The first principles in obtaining the best results from the propagation of camellias by cuttings is to obtain good healthy shoots from well-cultivated plants. Without correct material the percentage of rooted plants will definitely be low, but given the right shoots there is no reason at all why one hundred per cent should not root.

The third week in July has been given as the ideal time for camellia cuttings for 1946, but it should be recognized that the "right wood" for propagating is not concerned with exact dates. It is very difficult to explain when the wood is just right, the best or perhaps the only possible way must be found by experience. Some men have only to look at or handle the shoot of a shrub to be certain whether it is likely to root or not. The stock plants should be carefully watched, as the correct hardness of the shoot may vary to the extent of several weeks with different seasons, and again different species and even varieties are apt to vary considerably.

I prefer to insert my cuttings in fives around the inside of a large sixty-size (3-inch) pot in a mixture of three parts silver sand and one part sorbex peat. Place them in a propagating case with a little bottom heat and maintain a uniform moist atmosphere of 65° to 70°. It is most important to guard against dryness in the pots and the leaves must be kept fresh at all times. Camellias root equally as well in beds of the same compost in the propagating case, and should large numbers of cuttings be available, as when grown commercially, this may be the safest practice, as the beds would not be subject to the danger of rapid fluctuations between dryness and saturation.

However, should only a few hundred be needed the pot method is to be preferred, as the cuttings in the pot can be examined periodically for roots, and when ready taken from the close frame and placed on the bench in the greenhouse. This is a great advantage when the propagator is handling a large number of varieties, as some species root very much quicker than others. These can then be easily removed, leaving those not fit in the frame until ample roots are showing. *C. saluenensis* and its hybrids seem to be the first to root, followed by *C. Sasanqua,* and closely behind, *C. japonica* hybrids; *C. oleifera* and *C. taliensis* need much more time than two months to root, while with *C. reticulata* (wild form) quite four months is necessary. *C. reticulata* (garden form) is most difficult and the percentage of cuttings to root makes the effort most expensive. The writer remembers inserting one hundred well-grown cuttings, only to be successful in rooting eight of this large number.

Propagation by Leaf Cuttings with Bud Attached

I have chosen to call this method of propagation by the above title to draw the reader's attention to the difference between just "leaf cuttings" and "leaf with bud attached cuttings."

Camellia leaves severed from the plant by cutting through the petiole will produce roots if given the same treatment as advised for normal cuttings but, although roots develop in abundance, I have not to date been successful in obtaining the formation of a bud to produce a growth. The rooted leaves were well established in pots and kept well syringed for over two years. Eventually the leaves died and fell away, leaving the pots of roots only; these were retained for a further considerable period but without success.

Leaf cuttings with bud attached are the reverse, as in this case the leaf is cut from the plant together with a fully developed growth bud and a thin portion of the stem; these are inserted as normal cuttings and when rooted the bud grows away and forms the new plant.

These cuttings take longer than true cuttings do in making plants, and this method is only advised where stock is limited, but in such circumstances it is most profitable.

There is a difference of opinion as to the correct or best time to insert this form of cutting. Some successful growers quote October as a suitable month, but the writer considers the following March to be the better season.

This date has several things in its favor. The growth bud is formed in the node of the leaves of the current year's growth. It must be remembered that the bud which is the potential shoot is the most important part of the cutting, and this bud in October is not so fully developed or matured as it would be five months later in March. Again, in Octo-

(Continued on Page 32)

Camellia reticulata
(garden form)
—Photo by N. K. Gould

The Literature of the Camellia

DOROTHY S. MANKS*

THE story of the camellia should appeal to lovers of "whodunits." The puzzles begin with the earliest records, when the camellia was quietly substituted for its relative, the tea plant, in shipments from the Orient. Once the plantsmen discovered its identity, events followed the sequence of increasing popularity, profusion of cultivated forms, the craze for large collections, lapse into obscurity, and now a revival of popularity.

With this revival comes the discovery that the nomenclature is tangled and the identity of many forms in doubt, for more than one writer has played ducks and drakes with nomenclature, ascribed dates with cheerful inaccuracy, and labels have disappeared from specimens. The literature is fairly voluminous, but it is scattered through magazines and nursery catalogues as well as in monographs, and the best items are scarce. No student of the plant can go far without access to one of the good botanical libraries.

Because of the limitations of space, the following list of writers is selective, to suggest the range of time and the variety of types of material. For fuller lists and valuable comment the reader is referred to the papers by George Graves and H. H. Hume cited below.

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Trade Catalogues

Selections from the files of the Library of the Massachusetts Horticultural Society, compiled by Roger B. Thompson.

Firm	*Year*	*No. Listed*
England:		
Backhouse	1873	105 vars
	1896	67 vars
Bull	1870	4 pages
Rollison	1871	6½ pages
Veitch	1868	3½ pages
	1876-7	3 pages
	1913	24 vars

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Italy:		
Luzzatti	1851	38 pages
Fratelli Ravelli	1893	3 pages
Fratelli Sgaravatti	1897	55 vars
Belgium:		
Van Geert	1874-5	8 pages
Van Houtte	1866-7	10 pages
	1873-4	13 pages
	1894	3 pages
Linden	1875	4 pages
Pynaert-Van Geert	1894-5	many vars
Verschaffelt	1876-7	12 pages
France:		
Danvesse	1855	many vars
Leroy	1847	many vars

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Symposium . . . New Camellias

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New Camellias in the Southeast

R. J. Wilmot*

EVERY year camellias appear on the scene in the Southeast that arouse the interest of our enthusiasts. Some are old varieties that have been obscure and others are new seedlings, a multiplicity of which will appear in the next few years.

Of the former is one known as "Woodville Red," a local name given in Woodville, Miss. This name is used because it was the first of the local names to appear in nursery catalogs in print. This old plant is the property of Mrs. Tom White and is reputed to have been planted about 1822. It is also known locally as "Mrs. White." At Monroe, La., is another plant of the same variety known locally as "Henri Bry," the original owner who imported the plant from Europe about 1820. The property upon which the plant is growing belongs to Robert Layton who is the great-grandson of Henri Bry. At Savannah the variety is known as "Kollock" because it stood on the Kollock family property. Propagations from the Kollock plant became known as "Martin Roberts" for a later owner of the property. This variety is at present widely propagated and is very popular. Perhaps its European name will be found some day.

Other varieties that may arouse a great deal of interest are sports of old standard varieties. One of these is "C. M. Wilson," a pale pink sport of elegans (Chandler) that has appeared in Pensacola, Fla. It is a companion variety for "High Hat," the popular sport of "Daikagura" which appeared on the Pacific Coast. "Ville de Nantes," the fimbriated sport of *Donckelari* which was imported from France about 14 years ago and remained in obscurity for many years, is also very popular and becoming widely distributed. Two years ago it was so scarce that grafted plants were being offered at $75.00. "Fred Sander," a Belgian sport from Tricolor, also known as "Fimbriata Superba," may be considered new because it is not widely distributed and is still sought after.

The first three varieties registered by the American Camellia Society are seedlings of comparative recent origin. "Kathryn Stanton" is a ten-year-old seedling of unknown parentage grown by H. B. Stanton of Savannah, Ga. It first flowered in 1945 and won a blue ribbon in the Savannah Camellia Show seedling class that year. It is a fragrant single, 3 to 4½ inches in diameter, deep rose pink, with six petals. It is in flower from December through March. Our season, by the way, is usually over in March.

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*Mr. R. J. Wilmot is secretary of the American Camellia Society, Gainesville, Florida.

"Plumfield White" is a seven-year-old seedling from Semi-double Blush grown by J. P. Illges of Columbus, Ga. It first flowered in 1946 and won an American Camellia Society Award of Merit at the Central Georgia Camellia Show, Macon, in 1948. It is a fragrant semi-double white with variable petaloids, 4-5½ inches in diameter. It blooms from January to March.

"Joseph Pfingstl" is a seven-year-old seedling of unknown parentage grown by Emmett J. Pfingstl of Montgomery, Ala. It first flowered in 1944-45 and won an American Camellia Society Award of Merit at the Montgomery Show in 1948. It is about five inches in diameter, dark red, incomplete double in form. The petaloids are fluted and irregular and are intermixed with stamens. Some flowers may be complete double and do not show stamens.

Fruitland Nurseries of Augusta, Ga., have named several new seedlings among which is "Galilee." Of unknown parentage it first flowered in 1943. It is very large, semi-double, pink; petals lightly fluted, veined deep pink; stamens prominent but not clustered. It is hardy with bushy upright growth. It flowers from mid to late season.

Walter Allan of Summerville, S. C., has produced several seedlings including "James Allan," "Mrs. Walter Allan," "Glenn Allan" and "Dr. H. G. Mealing." "Mrs. Walter Allan" is a seedling of unknown parentage and first bloomed about 1940. The foliage, resembling that of *Donckelari,* is borne on upright fast growth. The original flowers were semi-double but after grafting have become practically complete double irregular with no stamens showing. Flowers average five inches or better in diameter and are almost impervious to frost unless they are old. The rose-red flowers last at least two weeks on the plant. Blooms January and February and sometimes into March.

Bradford's Wayside Gardens of Ocean Springs, Miss, has just started to distribute a number of seedlings from seed planted in 1928 and 1929. "Bradford's Gardenia," "Morning Glow," "White Butterfly," "Margaret Bardsley," "Mrs. Baldwin Wood" and its sport "Thelma Dale" and "Crusader" are some of their best. "Mrs. Baldwin Wood" is from a 20-year-old seedling that first flowered in 1938. The flowers are large, 3½-4 inches in diameter, translucent white with a silver-pink stripe on one or more of the petals. It is incomplete double in form. The sport "Thelma Dale" is identical except that it is self silver-pink.

Magnolia Gardens has produced many seedlings some of which have come as volunteers near old plants and others for which the seed has actually been gathered and the seed planted. Some of their older seedlings such as "Mrs. Charles Cobb," "Duchess of Sutherland" and "Eleanor Hagood" have been widely distributed. "Lady Charlotte," one of their later varieties, is semi-double, clear, pale pink with three rows of waved petals, veined with white, surrounding a cluster of prominent stamens. The plant is very ornamental since its growth is tall and symmetrical and the foliage is very dark, pointed, and heavily veined.

* * *

New Camellias in Southern California

CLAUDE CHIDAMIAN*

SOUTHERN California has been unusually active these past few years in the development and introduction of new camellia varieties. But of the great number of new plants offered to the public, only a few have thus far really met the test of time and popular appeal. Two local firms dominate the field, both in quality and number of introductions, and brief survey of their work may serve to indicate the variety and importance of Southern California's contribution.

Coolidge Rare Plant Gardens

Probably the most sought-after and highly prized camellia on the West Coast today originated in the Coolidge Rare Plant Gardens in East Pasadena, California. The plant was first described in the *Bulletin* of the Southern

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*Mr. Claude Chidamian is editor for the Southern California Camellia Society, Inc., Pasadena, California.

California Camellia Society, Vol. VI, No. 6 (March, 1946), as follows:

Camellia "High Hat," registered by Coolidge Rare Plant Gardens, is a sport of Daikagura, and was first bloomed November 15, 1938. It blooms from October through March. The plant grows, with average rapidity, to compact form. The leaf is heavy, elliptic in form, with acuminate tip, margin deeply and irregularly serrate; veining, pinnate; length, 9-11 cm.; width, 5-6 cm.; color of top of leaf, holly green, with some variegation; under surface, boxwood green. Length of petiole, 1 cm. Buds, round.

The blossoms are of peony form, of softest pink, feathered in white; size, 11-12 cm.; has 20 petals and many petaloids.

"High Hat" is one of the great camellias of our time, and because it has an early, prolific, and long-blooming season covering the holidays, good substance, and suitable corsage size, it will always remain a "must" variety with both commercial and amateur growers.

Another popular introduction of the Coolidge Gardens was described in the same issue of the S.C.C.S. *Bulletin:*

Camellia "General George Patton," registered by Coolidge Rare Plant Gardens, is a seedling, one of whose parents is C. "Purity," the other unknown. It was first bloomed January 1, 1939, and its blooming period is December-March.

The plant grows rapidly, is of open form, similar to but bushier than "Purity."

The leaf is heavy, elliptic, has slightly serrated margin, with pinnate veining; length, 9-10 cm.; width, 5-6 cm.; color, top, dark holly green; under surface, boxwood green. Length of petiole, 6 cm. The buds are round.

The blossoms are of rose form, neyron rose in color (623/1, *Horticultural Color Chart);* they are 9-11 cm. in size, and have 46 petals.

Rancho Del Descanso

For the third consecutive season the Rancho del Descanso of La Canada, California, one of the West's largest wholesale camellia firms, has scored in making the most important introduction of the year. Out of a great collection of over half a million plants covering acres of oak-covered hills, have come the following:

1946

"Berenice Boddy." Medium sized, light pink semi-double flowers, borne in great abundance early in the season. Blooming starts about December 1st. Plants vigorous, upright growth with dark green foliage. U. S. Plant Patent No. 605.

This plant is a seedling developed at Sierra Madre and was named in honor of Mrs. Manchester Boddy, wife of the Editor-Publisher of the *Los Angeles Daily News.* The plants set seed easily and several important crosses have already been made by Dr. Walter Lammerts, the Rancho's famed hybridist, using it as the female parent. One outstanding cross was Berenice Boddy x *C. saluenensis* var. "Apple Blossom." This has resulted in a light pink seedling, the first flowers of which have been quite fragrant.

1947

"Mary Charlotte." Beautiful pale pink color, Chandleri-form flowers, blooming moderately in midseason. Plants compact and of average vigor.

This camellia, along with the varieties "Pride of Descanso" and "Jenny Jones" resulted from hybridizing done by the president of Osaka University. His purpose was to create a Royal Collection for the Emperor of Japan, and this one rated best of all his seedlings. It was brought to America in 1931 by a Japanese camellia grower, who received it as a gift when he made a substantial donation to the University. The variety was named "Mary Charlotte" in honor of a lovely young American lady whose father was a friend of the Japanese importer. So far as is known it has never borne seed, though it does bear enough pollen to fertilize flowers on other varieties.

"Pride of Descanso." A very large white, semi-double to loose peony form. Rated by authorities as one of the most outstanding white varieties in existence. Blooms freely in midseason. Plants vigorous and bushy in growth habit.

1948

"Jenny Jones." A great white camellia of the Lotus type, but with firm, crinkly inner petals and excellent keeping qualities. Blooms profusely in midseason. Plants vigorous, very compact, and foliage very dark green.

"Mrs. Howard Asper." Large, semi-double, cup-shaped flower, of warm, medium pink color. It lasts well when cut and never fails to create a sensation when worn as a corsage. The plant is of moderate growth, the leaves being rather small and somewhat sparse. It flowers freely, however, beginning about February 15th.

This outstanding variety came from one of a group of seedlings imported from Japan and first flowered at the Rancho del Descanso.

Many camellia experts believe it to be the result of a cross between the species *C. japonica* and *C. Pitardii.* It is certainly "something new" in camellias. So far as is known it sets no seed and none of its pollen has proven fertile. It was named in honor of Mrs. Howard Asper, wife of the manager of Rancho del Descanso.

* * *

New Camellias for Northwest Gardens

G. G. Ramsey*

THE Puget Sound area offers climatic conditions more favorable to growing camellias than most places famous for their culture. Damp, cool air with no excessively cold or hot weather more nearly approaches the actual conditions of their natural habitat, the forested lower slopes of southeastern Japan.

A blooming season extending from October to May, flower shape variations, color ranging from white to deep red and variegated, and blossoms up to seven inches across, all make camellias one of the most desirable flowering trees for this area.

Several hundred varieties of *Camellia japonica* are listed, most of which prosper here. New varieties, developed from seedlings and sports of older varieties, are continuously being offered. Some of these are duplications of other named varieties and some are so little different that they offer little to the camellia fancier. Now and then, however, something truly new and fine makes its appearance.

From this latter group, I have chosen a few varieties that I believe to be of outstanding merit. With the exceptions that I have noted, these varieties appear to me as being the best in the newer varieties to acquire at present, but will be more available within two or three years.

White

"Madonna." Very large, semi-double, flat, water-lily type of flower, measuring up to six inches across. This camellia is one of the most exotic of all the camellias, being colored like a fine orchid, with crepe-like petals, yellow at the center (from the pollen), shading to pure white, then to flesh pink at the end where the petal is ruffled. This blossom is very desirable for corsages.

The blooming season, April and May, is late enough to miss most of our inclement weather, making it much more desirable than the early blooming "Lotus," a variety that rain spoils. Like most luxuriant flowers, an unusually hot day ruins the blossom and for that reason I recommend a semi-sheltered place and not a southern exposure.

"Queen Bessie" ("Queen Elizabeth"). Large, magnolia-like, white camellia, shading to blush pink at the center, semi-double, cup-shaped, five-inch flowers, blooming in April and May, beautiful in cut flower arrangements. Plant has a vigorous upright growth similar to "Elena Nobile." Dark green foliage.

Blossoms are mostly inside the foliage, and thus well protected from inclement weather. The plant does not bloom early in life, usually beginning about the fifth year.

"White Giant." Large, semi-double white, dark green leaves.

"Haku-Rakuten." Large, semi-double, ruffled petals, creamy-white.

Red

"Ville de Nantes." Very large, semi-double, turkey-red, with large fimbriated petals; some of the outside ones bending back underneath. Other than "Fimbriata Superba," which it resembles, it is unlike all other varieties of camellia blossoms, resembling a huge parrot tulip in full bloom—with outer petals bent backward. Flowers are splendid for corsages and cut flower arrangements.

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*Mr. G. G. Ramsey is a grower of fine camellias at 6312 Seward Park Avenue, Seattle, Washington.

This is one of the most outstanding red camellias for Puget Sound gardens. Besides being very decorative in bloom, the plant itself is attractive, being an upright, vigorous grower, the plant shaped similarly to "Kumasaka"; foliage dark green, small leaves. The plant blooms heavily during March, April and May and blooms early in life. This camellia does well out in the open and is hardy. Unlike "Fimbriata Superba," which cold weather affects, "Ville de Nantes" buds are not damaged by prolonged freezing spells.

This variety is difficult to propagate from cuttings. The rooted cutting seems to lack vigor and is very slow in growing. Grafted into a good understock, however, it shoots out a well-formed, fast growth.

"Flame." Not a very new variety, but scarce, for it is very difficult to propagate from rooted cuttings. Large flowers up to six inches across and four inches high, three rows of petals loosely forming a full double. Brilliant scarlet flowers, blooming heavily, make this a magnificent display for the garden.

On grafted understock, this variety grows vigorously and upright. Very hardy in this climate and grows in the open. Blooming period late March until May.

"St. Andre." Semi-double, large, dark red. A new variety that promises strong competiiton for leadership over the reds. Very scarce.

"Rising Sun." Single, large, flame red, small narrow leaves. Too new to know much of its habits.

"Glenn No. 40." Full double, scarlet flowers are deep, fully imbricated and very large. Blooms early in life, midseason to late, and is very hardy. In this climate it is far superior in color intensity and in size to the "Colonel Firey."

"Firebrand." Large, semi-double, dark red. A beautiful deep blossom.

"Adolphe Audusson." Large, dark red, loose double. Not as new as above mentioned varieties, but considered by many camellia fanciers as one of the best reds for Pacific Northwest gardens because of its rapid growth, prolific blooming and brilliancy of blossom.

"Mrs. Charles Cobb." Large, imperfect double, turkey-red.

Reticulata. A species difficult to propagate from cuttings, but does well grafted on any good *japonica* understock. A brilliant red flower measuring six inches across, forming a semi-double flower of long twisting petals. This camellia resembles some of the tropical hibiscus in brilliancy and form. For corsages it is more prominent and attractive than most orchids.

Fast growing, willowy, long slender leaves. This is not a hardy variety but is being grown outdoors very successfully here in Seattle. Unless grown near the water, choose a place well protected from the cold, and in all instances from too hot a sun exposure, for its leaves sunburn and new growth will wilt. Perhaps it is best kept in increasingly larger pots so that it may be moved inside in event of an extreme cold snap. This camellia is so outstanding that it warrants the extra care needed.

Pink

"Mrs. Freeman Weiss." An outstanding new pink. The blossoms are large and deep, forming a loose, full double in bright pink. The growth habit is particularly good, being fast growing and upright. A midseason bloomer and hardy.

"Pink Poppy." Very large, peony-shaped double; is one of the best of new pinks.

"Souvenir de Bahaud Litou." A sport of "Mathotiana rosea," is a lovely new camellia of a delicate shade of pink. The flower is very large, fully imbricated with outer petals bending under.

The shrub in bloom resembles a large hydrangea plant with its large pompon flowers all over the outside. It has a tendency to grow rounded and bushy midseason. Foliage large, glossy, light green.

"Anne Lindbergh." Not as new as the above mentioned pinks, but truly a lovely camellia and deserving credit as being a favorite among collectors. A large, deep flower of bright pink forming an imperfect full double. Vigorous growing, it blooms heavily in midseason at an early age and is hardy enough to grow in any exposure in this climate.

New Camellias for Washington

James Buzard*

NEW camellias come into being in two ways: by seedlings of chance crosses or those produced by hand pollination, and from "sports." Camellias have a decided tendency to "sport" and many fine varieties have been produced this way.

In bringing camellias in from the south it takes from two to three years for the average plant, longer for others, to become established and to show what can be expected of it here. Different climatic conditions have a decided effect on camellias, even to changing the flower form, color or variegation, and in some instances the size of the foliage. Until a plant has bloomed for two or more seasons it is difficult to determine if it will fulfill its promise of loveliness and its suitability for this climate.

"High Hat," which is a pale pink sport of "Daikagura" should be satisfactory wherever "Daikagura" gives good results. The flower form and texture, foliage and manner of growth, and blooming season are the same. The flowers have remarkable lasting qualities on the plant and though of very delicate color seem to withstand adverse weather well.

"Yohei-Haku," alias "September Morn," "Albatross," "Shiro Byoshi" and "Shiro Daikagura," is an extremely early white, similar in form and texture to "Daikagura" and apparently of equal quality.

"Ville de Nantes" (California strain), with its unique flower form and fine brilliant red color is exceptionally good. It begins to show color in late fall, to bloom in January, and continues in bloom for some three months. The blossoms withstand adverse weather conditions and have fine lasting qualities both as cut flowers and on the plant. The eastern "Ville de Nantes" is either a different camellia or one of those chameleons which has completely changed in its changed environment.

"Vedrine," called "Ruby Glow" in California, and also known as "Mehl's Red," is a splendid clear red which blooms from January to April. The long lasting flowers withstand rain and sun and are altogether delightful.

"Lady Mary Cromartie," a large, loose, semi-double, fine pink is free blooming and gives promise of being as fine here as it in the south. It is really tops.

"Pink Poppy" from the East Coast is a fine pale pink single with a distinctive arrangement of the stamens. It is late blooming.

"Mrs. Josephine Hearn," which was developed in California and which has just recently been introduced to the East Coast where it is being listed as "rare," can be counted upon to bloom heavily, in fact it should be disbudded for best results. "Margaret Hearn" and "Marie Keating," productions of the same grower are also free blooming and satisfactory.

"Oniji" is a beautiful variegated form of "Lady Clare." It is a fine pink, heavily splotched with white and has all the fine qualities of the solid color form.

"General Patton," said to be a pink sport of "Purity," is of fine form and color. When established it should prove a very fine variety.

"Cleopatra" (M.A.), from California, not to be confused with the *Sasanqua* or the eastern variety, is a charming, delicate pink and white, loose double flower. "Eleanor McCowan,"a striped pink and white peony-form flower, is free blooming and very satisfactory.

"John Illges" is a brililant red single of unusual form, but is difficult to grow, though when well established seems to bloom freely.

"Capitol City," a fine single pink, has a tendency to change from petaloid center to stamens with a change of growing conditions.

"Strawberry Blond," "Rich Pink Peony" and "Pink Lady" are sports of *Paeoniflora* and behave in much the same way.

"Pax," a fine formal white, stood up well in the bad weather last spring. The fine white flower rivals the gardenia in charm as a corsage flower.

"Shin-Akebono," a luscious shade of pale pink, large single with golden stamens, is exceptionally fine. It is early blooming and so may suffer some from late frosts.

(Continued on Page 29)

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*Mr. James Buzard is owner of the Lakeshore Gardens, Bellevue, Washington.

The Christmas Rose

MRS. CARL MCNEILAN BALLARD*

DURING the dearth of the flowering season it is thrilling to find a choice bloom and nothing is more appealing than the wax-like flower of the Christmas Rose *(Helleborus niger)*. It is a plant of ancient days and so long known to mankind that the meaning of names and descriptions of various species have become confused.

In our humid Puget Sound climate, and even under much colder conditions, they thrive. The stem can become quite stiff with frost, but when the ground thaws the plant will be in perfect condition. It is fun to dig deep in the snow and find a Christmas Rose gallantly blooming.

Christmas Rose—what a romantic name! A legend comes down from medieval Nativity plays that, in the Alsatian Mountains where these wild plants grow in abundance, the first flower came into bloom at the hour of the birth of the Christ child. And, since then, they have been called Christmas Roses.

Another tale is that many years before the birth of Christ a Greek mythical physician, Melampos, discovered that Hellebore roots could be used in the treatment of mania. Through all the ages since, the hellebore has been used in treating maladies of man and beast, and even into modern times has been prescribed in cardiac and nervous ailments. Helleborus, loosely translated, means "food of death."

Helleborus—Christmas Rose—is not a real rose at all, but a member of the Ranunculaceae (Buttercup) family. It is interesting to note that there are 22 different species which are classified into two groups.

1. *Helleborus caulescentes* (plants with a stem).
2. *Helleborus acaules* (stemless plants).

Beautiful specimens of hellebores of these two groups will bloom from October to April. The long-stemmed *corsicus* and *foetidus* are charming though not as well known as the shorter stemmed *orientalis* or *niger*. *Corsicus,* native of the isle of Corsica, grows over two feet tall and has many large clusters of chartreuse-colored blooms. Its blue-green, evergreen leaves have saw-tooth edges.

Foetidus is similar to *corsicus* except that it has much narrower leaves and smaller flowers. The flower stalks and leaves emerge from narrow sheaths along the stem. The nodding chartreuse-green flowers are edged with henna and have a woody scent. *Foetidus* is the only hellebore with any odor.

Acaules, the second group, to which *orientalis* and *niger* belong, is classified as stemless, but, due to extensive propagation, has now developed sizable stems. *Orientalis* is the true black Hellebore of the ancients. The roots of this species was used by them as a medicine to combat madness and melancholia.

Orientalis start blooming in February and are at the peak of bloom in the Lenten season and are hence called the Lenten Rose. The leaves are very large on a forked stem with many flowers on each stalk. They come in all colors, ranging from white through wine and red to purple and some are sprinkled with black dots. Most plants are unnamed because there has been intensive cross-pollination. One of the finest named varieties, of a wine shade, is "Irene Kroneman."

The true Christmas Rose is called *Helleborus niger*. It has always been considered the most outstanding. The variety of *niger* commonly planted here, *Helleborus niger altifolius,* was introduced into English gardens in 1596, directly from Austria, and safely arrived in Pennsylvania with the first Quakers. The earliest *niger* to bloom is *praecox,* but it does not compare to the later blooms.

By November 15, the lovely "Pierre Pachou," developed by M. Pachou in his

(Continued on Page 34)

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*The story of the Christmas Rose, though a deviation from this issue's general topic on the Camellia, could find no more fitting place than in the December issue. Its author, Mrs. Carl McNeilan Ballard, one of the Northwest's most enthusiastic growers of this delightful Christmas flower, is vice-president of the Arboretum Foundation and General Chairman of the Unit Council Board of Arboretum Units.

The Arboretum Bulletin

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Notes and Comment

The appointment of a director for the Cornell Plantations, Cornell University, Ithaca, New York, was announced recently. This announcement names Dr. John F. Cornman as director. He is a graduate of Cornell, successor to Professor Ralph W. Curtis, recently retired, and teaches plant materials in the Department of Floriculture and Ornamental Horticulture in the New York State College of Agriculture at Cornell University.

* * *

One of the most valuable new books which has come to the Arboretum lately, especially to those interested in introducing or growing new and unusual trees and shrubs, is Mr. W. Arnold-Forster's "Shrubs for the Milder Counties," published in England by Country Life, Ltd. (2-10 Tavistock St., Covent Garden, London, W. C. 2) at $6.00. In New York by Charles Scribner's Sons.

It will be reviewed in our next issue, but even a casual glance shows it to be full of information, ideas and illustrations calculated to inspire the novice and set even the most experienced seeking some of the rare and lovely plants described.

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It is good news for all who drive regularly through the Arboretum to know that the Parks and Engineering Departments of the city have agreed on the details for paving and improving Lake Washington Boulevard from Madison Street to 26th Avenue North and Miller Street on which $75,000.00 will be spent. It is hoped also that the scheme may be extended to the road round the north end of the Arboretum and to resurfacing the gravel Upper Road, at present so dusty in summer.

* * *

Plans are under discussion for a very attractive and practical memorial to the late Mrs. Anna Thomsen Milburn, to be placed close to the Garrett Memorial Planting north of Rhododendron Glen. It is likely to take the form of a circular or semi-circular paved area, surrounded by a low wall, with wooden benches, and including a drinking fountain.

Book Reviews

A Study of the Genus Paeonia, by F. C. Stern. Published by The Royal Horticultural Society, Vincent Square, Westminster, London, 1946. Price $13.00.

THIS is a new and valuable addition to the library of the University of Washington Arboretum. It is a large book (11½ inches by 15 inches), 155 pages, beautifully bound in attractive dark blue cloth, with gold lettering.

The author is Col. F. C. Stern, O.B.E., M.C., V.M.H., whose garden is at Highdown, Goring-by-Sea, Sussex, where many of the species described have been grown. He is well known in English horticultural circles as a member of the Council of the Royal Horticultural Society, chairman of the Lily Group and cultivator of many varied and excellent plants.

The author in the introduction states that, "This genus is so interesting and also so useful for the garden that it seems worth while to try and get the nomenclature in order; this has necessitated an examination of the whole genus."

The first chapter is devoted to "Keys and Classification"; the author states that each species has been described from dried specimens, collected in the natural habitat and preserved in the herbaria of the well-known Botanical Gardens at Kew, Edinburgh, the British Museum, Manchester Museum, and the Musee Nationale d' Histoire Naturelle of Paris. Also certain specimens from Calcutta, Leningrad, and Vienna have been examined.

Unfortunately for the ordinary gardener, descriptions of well-known garden forms and hybrids have not been given "although reference has been made to some of the best known garden forms." Even though these have not been included many of the species such as the sweet-scented *P. lactiflora*, the yellow *P. Mlokosewitschii*, *P. Wittmanniana*, and many others are listed in a separate chapter as beautiful, hardy and well adapted for general use. A new and ingenious technique has been employed in the classification of the species. Where there are very slight external differences, the somatic chromosome numbers act as a determining factor. Some paeony species have twenty as their chromosome number, hence are tetraploids ($2n=20$); others have ten as their number ($2n=10$) and are called diploids. This device is used to differentiate species and each one listed has been tested and designated as tetraploid or diploid.

The second chapter gives a Summary of Paeony Species and their geographical distribution. Maps are used, and it is of interest to find the two American species *P. Brownii* and *P. californica* included. The author states, "The genus Paeony is found only in the Northern Hemisphere. The species extend from Western Europe and from Morocco and Algiers, through Europe to Asia Minor and the Caucasus; they also extend from Lapland and North India through central Asia to western China and Japan; outlying species occur in western North America." Then follows the "Enumeration of the Species," forty-seven being described. This portion of the book is amply and beautifully illustrated by black and white drawings of leaves and carpels. Also included in this section are fifteen full-page illustrations in color by Lilian Snelling, which are exquisite in color, design and execution. The color of the flowers ranges from white and yellow to pink, red. and reddish purple.

Chapter four deals with the history of peony literature in a thorough and painstaking manner. Starting with the "Inquiry Into Plants" by Theophrastus (370 B.C.), followed by Dioscorides, and Pliny the elder of the first century, the list continues down through the centuries. The great herbalists and horticulturalists of all nations down to the present time are given their due amount of attention. It is a mine of information to those interested in the genus from an historical point of view.

The next chapter will appeal to the practical gardener as it deals with "The Paeony Species in Cultivation." Those species suitable for garden purposes are listed, with descriptions of the plants, color of blooms and directions for successful culture.

Appendix I lists Paeony species and synonyms, followed by Appendix II which is a complete bibliography. The general index completes the book.

"A Study of the Genus Paeonia" is a choice book, of value to the student and amateur alike, and is undoubtedly the most comprehensive and scholarly study ever made of the genus.

M. R. T.

* * *

Azaleas—Kinds and Culture, by H. Harold Hume. Published by Horace McFarland Co., Mount Pleasant Press, Harrisburg, Pa. Price $3.75.

H. HAROLD HUME'S book, "Azaleas—Kinds and Culture," is today the most inclusive and comprehensive book published upon the subject. Mr. Hume, in his own Introduction, cites the reasons for its publication: "In the last fifteen years, new problems have arisen in the growing of azaleas, new varieties have been originated and introduced and a large number of kinds, not always identified as to species or variety, have been brought from the Orient. The culture of azaleas has been undertaken in many new areas and they now have a place in planting where none were grown formerly. Additional knowledge of their culture has been gained; problems that have arisen from time to time have been investigated."

"Azaleas—Kind and Culture" will be enjoyed by all gardeners. It is well edited, well printed, lavishly illustrated in both color and black and white. The binding is a pleasant shade of sturdy cloth and a handy size for the gardening shelf.

The contents are divided into sixteen chapters which follow each other in logical sequence. The opening chapter is captioned "Appreciation." Again in the words of Mr. Hume, "A close relationship exists between the flora of China, Japan, and adjacent areas of Asia and North America." With this premise in mind he brings forth the theme of harmonious relation between azaleas and garden plantings in North America. Providing the right varieties are selected, azaleas can be grown in practically every part of North America.

In succeeding chapters, Mr. Hume tells where azaleas will grow, describes deciduous azaleas, persistent-leaved azaleas, propagation of azaleas, soils and their preparation, planting azaleas, culture and care, feeding and pruning, garden azaleas, and azaleas as pot plants. Greenhouse culture is discussed and control of insect and mite pests. Azalea diseases are given a clinical discussion as a finale to this comprehensive analysis of the entire subject of azaleas.

Here in our Northwest where azaleas are so well known and valued as a part of both civic and private planting, there are many planting suggestions made by Mr. Hume which could be followed to great advantage in further plans for mass planting and color effect.

The discussion of Indian varieties of azaleas will be of interest to greenhouse growers; some of these varieties might be found of use in outdoor gardens; in lath houses or in protected locations they might give an additional exotic touch unknown heretofore.

As in all of Dr. Hume's works, you feel you have shared an adventure with him in the appreciation of new beauties, and glimpsed the factual work of scientific mind motivated by the desire for knowledge, but illuminated by the appreciation that beauty is in itself an end and needs no other.

—Elizabeth H. Hanley.

* * *

The American Camellia Yearbook for 1947. Edited by R. J. Wilmot. Published by The American Camellia Society, Gainesville, Florida.

THE YEARBOOK begins with an early history of camellias in this country. According to all extant records they were introduced into California by a Mr. Warren who brought them from New England and settled himself with his plants near Fort Sutter where gold was first discovered. The first of the early American camellias were probably brought to New York in 1800 by Michael Floy who initiated the growing of camellias from seed. Mr. R. J. Wilmot of Gainesville, Florida, gives a long list of camellias (213) which early originated in America, seventeen of which are found in our catalogs today.

Mr. Wilmot is also the author of the two articles in the Yearbook on Chinese and Japanese camellias. He has found that the earliest Chinese writings about camellias began in the period 290-307 A.D. In the article on Japanese camellias he lists the Japanese names, giving their pronunciations and translations.

From the history of camellias follow perfectly fascinating chapters on propagation, written by authorities from across the country. There are many personal experiences of growing camellias from seeds, from leaf bud cuttings, stem cuttings and grafting. The descriptions are easily followed by the amateur and the illustrations add greatly to the interest of the articles.

Mr. Paul Ackerman of Neponset, Long Island, writes a chapter on camellias as house plants. He says they can be successfully grown in New York in a glassed-in porch with south and east windows and no other heat. He opens the door into the house only to keep the temperature above freezing. In a temperature of 45 or 50 degrees many varieties can be brought into bloom from October to April. He then goes into details, naming varieties best to handle in this way. Fertilization and watering are then discussed completely and simply.

Greenhouse culture is discussed by several growers.

Perhaps because I have seen camellias grown beautifully in containers, the chapter on this subject was especially thrilling to me. Mr. Claude Chidamian of Los Angeles gives twelve reasons for the pot culture of camellias, all very practical and convincing. To list a few of his dozen statements: "They thrive indefinitely in relatively small containers and do not mind being root-bound, provided they are fed and watered regularly. Composition, fertility, acidity, moisture and dainage of camellia soils can be more easily controlled. Potted camellias can be enjoyed in gardens where natural conditions (soil, drainage, etc.) are unsuitable. They have a tendency to bloom earlier in the season and at an earlier age, and more profusely than plants of the same variety in the ground."

There is a short chapter on the hardiness of camellias in Yonkers, New York, followed by an invaluable chapter on pruning by C. Norwood Hastie, Jr., from Magnolia Gardens, South Carolina. He stresses the importance of pruning for the "health and prosperity" of the plant. The directions for pruning are clear and concise and there are photographs to illustrate the directions in the text.

The descriptions of the diseases of camellias are authoritative and the control of all known troubles is discussed.

Descriptions of camellia gardens, camellia shows, and lists of names of camellias are at the end of the book.

This Yearbook is a tremendous contribution to the literature on growing camellias and should be a handbook for every gardener.

—Grace T. Dowling

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Symposium . . . New Camellias

(Continued from Page 24)

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"Daitarin," though not so new here, should be proudly acclaimed as being a Japanese variety which was first introduced in the United States in the state of Washington.

These are but a few of the more than 400 varieties, new and old, which I have planted in our garden in the past few years. Of the others, some have yet to bloom, others should be discarded as not being up to the standard they attain in other parts of the country; others are even finer than when grown in other climates.

* * *

Mrs. W. A. Fisher contributed 147 ferns to Woodland Garden, the West Seattle Garden Club's sponsored project in the Arboretum. Five species are represented.

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The Royal Botanic Gardens, Kew

(Continued from Page 6)

houses are in charge of one of the principal assistant curators.

Plants requiring cooler conditions are grown in the Temperate House, a structure 60 feet high in the center consisting of a main central building with two wings connected by octagonal corridors, with an annex for not quite hardy rhododendrons on the west side. The total length of the building is 628 feet and the center part is 164 feet wide. It covers nearly two acres. It is in charge of an assistant curator.

A third assistant curator looks after the more decorative side of gardening as constituted by flower beds, herbaceous borders, garden roses and so on, with the care of a large conservatory which is kept filled with flowering plants throughout the year. Many of the plants are grown in reserve houses until they are in flower.

A fourth department includes the botanical collection of herbaceous plants and the rock garden. This also is in charge of an assistant curator.

The second principal assistant curator has charge of the Arboretum which extends to about 250 acres. His duties include the care and upkeep of all trees and shrubs and most of the grass and paths, the ponds and the lake. Gravel paths alone run to about 16 miles while there are numerous grass vistas and avenues. The tree and shrub collections include some 5,000 species. The various genera are separated as far as possible but amenity purposes are studied by grouping particularly attractive genera and species about the place. Thus large areas are devoted to rhododendrons, azaleas, magnolias, crab apples, Japanese cherries, brooms and so on. Many extensive areas have been given over to the naturalization of narcissi and crocuses, while in the wilder parts of the place there are acres of bluebells beneath the trees.

The industrialization of the neighborhood has led to such a deterioration of the atmospheric conditions that it became necessary, rather more than twenty years ago, to establish a new Pinetum for the cultivation of coniferous trees in a distant part of Kent well away from the smoke of large towns.

No account of the Royal Botanic Gardens, Kew, is complete without mention of its importance as a finishing-off place for training young gardeners. There are usually between 50 and 60 young student gardeners at Kew, who, to be accepted, must be between the ages of 19 and 24 and have had at least four years' practical training in horticulture. They engage for two years and are put through a stiff period of instruction, after which they are drafted to important positions at home and abroad. In the course of years there is scarcely a country to which a Kew trained man has not been sent. There are several in the U. S. A.

An idea of the popularity of the Gardens to the general public may be gathered from the fact that during 1947 1,620,960 people passed through the turnstiles.

* * *

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Camellia Propagation

(Continued from Page 14)

about the point of union to cover all open areas.

Perhaps something should be said regarding the method used in converting unwanted varieties over to those more desirable. While the cleft graft is used to some extent in greenhouse propagation, it is probably the only type of graft that is used for outside grafting. Plants of almost any size diameter of trunk can be cleft grafted. This is usually done in the spring of the year, just before growth starts, probably from the middle of February to the end of March. The trunk of the bush or tree to be grafted is cut squarely off, several inches above the ground. Using a grafting iron or heavy knife, it is then split to a depth of one and one-half to two inches. The opening thus made is then spread by using the end of the grafting iron, a screw driver or any wedging tool, and the scion inserted so that the cambiums come together. With careful removal of the wedging tool, the scion will be held in place. One, two, or even four scions can be placed in a single stock, depending on the size of this stock. If the stock is fairly small, and the tension is therefore not heavy enough to hold the scion in place, it is advisable to wrap the end of the stock with waxed string. Some prefer to use grafting wax to cover the cut end, but this is not entirely necessary. A sandy loam of some kind, which will provide good drainage, should then be heaped up over the end of the stock and over the scion until all except the tip of the terminal bud is covered. A wide-mouth glass jar of some kind may then be placed over the graft, so that moisture may be maintained, and also an even temperature held about the scion until the graft has taken. Shade, probably burlap sacking, should be put over the glass. Moisture must be maintained about the roots of the plant while the union is taking place. The shade may be lifted from time to time to follow the progress of the union. When it appears that union has taken place and growth has developed a short distance, the glass covering may be raised slightly on

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Feijoa sellowiana
Franklinia
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Hamamelis japonica
  flavo-purpurascens
  mollis

SHRUBS

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Honeysuckle fragrans
Hydrangea Trophee
Ilex (Holly)
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  crenata convexa
  cornuta femina
  French (berried, good size)
  latifolia
Ivy variegated
  small leaf
Kalmi angustifolia
  latifolia
Leucothoe catesbaei
Ligustrum quihoui
Magnolia alba superba
  campbelli
  grandiflora
  nigra
  rustica rubra
  tripetala
  veitchi
  (and others)
Nandina
Osmanthus armatus
  fragrans
  ilicifolius

SHRUBS

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Pachsyandra terminalis
Pernyettya
Phillyrea decora
Photinia glabra
  serrulata
Pieris japonica
  taiwanensis
Pyrancantha kansuensis
  lalandi
  pauciflora
  yunnanensis
Raphiolepis ovata
Sarcococca ruscifolia
Skimmia
Stewartia pentagyna (few)
  monadelphia (few)
Stranvaesia davidiana
Ternstroemia
Viburnum burkwoodi
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one side to permit a small amount of air to enter. By degrees, over a period of several weeks, the glass can be entirely removed, but the shading should be kept on for a while until the new growth is entirely hardened. Direct rays of the sun can be quite destructive to new foliage at this stage of growth. Since the root structure which had been formed to feed a much larger plant now feeds a few small scions, it follows that growth will be rapid when once underway, and the size of the new variety thus created will in its first year attain height in proportion to the age of the understock.

The Propagation of Camellias

(Continued from Page 17)

ber plant life is not so active as in March, when, with the sun gaining power, everything wants to be on the move. This type of cutting then roots more quickly and the propagator has a strong bud to throw a growth. Against all this it can of course be argued that October is not such a busy month as March, and there would be far more spare room in the propagating case of a busy nurseryman in the autumn than in the spring.

Before I leave this subject of cuttings, I would like to emphasize the need for caution when potting off the rooted plants into small pots, for unless great care is exercised the fleshy roots will easily be broken away from the cutting. This can very simply be done should the soil be pressed too tightly into the pots around the young plant. At Wisley this past autumn quite a considerable batch were potted up, and appeared to be correctly done, but about three weeks afterwards quite a third of the plants withered up and died. On investigation it was proved that during the potting operation the roots had become detached from the cutting.

Grafting and Layering

Although in the commencement of this article I decried the grafting of camelilas I must admit that with *C. reticulata* (garden form) it is an advisable operation if the grower is to get sufficient plants for his purpose. *C. reticulata* is, however, not easy to increase by this means and must have first-class attention and craftsmanship to prove successful. I have found it far the best to practice side-grafting for this particular plant, taking pains that the cambium layers of stock and scion join correctly.

Keen observation will be necessary to ascertain the correct time to detach the head of the stock from the grafted plant.

Any common free-growing camellia plants may be used as stock for grafting. It is not advisable to keep the grafted plants in the propagating case any longer than is necessary to complete the union of the cambiums. As soon as these are satisfactorily united, the plants should be stood out on the bench of the house to harden up the union.

The layering of camellias is not usually advocated, but this can be done and is a ready means of increase. The shoots to be layered must not be too old and hard; shoots of one and two years' growth only must be used. Pegs will be necessary to form the abrupt turning in the layer to check the flow of sap. With camellias a sharp twist of the stem to break the bark at the point of the elbow will

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be beneficial to the rooting of the layer. Some growers consider it advisable to make a snick in the layer with a sharp knife, in the manner as for layering of border carnations. Camellias are not the easiest of plants to move from the open ground, therefore the layers should have ample roots before transplanting.

The Arboretum in the Fall

(Continued from Page 4)

nated. Mr. Fred Meyer, of the Missouri Botanical Garden, kindly sent us some of the results of his plant collecting expedition into Mexico this summer, including some very uncommon tree and shrub seeds, and from the Botanic Garden at Glasnevin, Dublin, came seeds of four species of Meconopsis, the lovely Blue Poppies. One of the rarest items however is the Kauri Pine of the North Island of New Zealand, *Agathis australis,* of which seeds came to us lately from the U. S. Plant Introduction Station at Beltsville; it is much to be hoped they will germinate and start their lives here.

(c) *Books:* Recent acquisitions have not been as numerous as in previous months but are still varied. They include Duhamel du Monceau's famous "Traite des Arbres et Arbustes," two illustrated volumes published in Paris in 1755; C. S. Sargent's finely illustrated work, also in two volumes, "Trees and Shrubs," (1902-1913); "Flore Forestiere de l'Algerie," by Lapie and Maige, (1914); "Azaleas—Kind and Culture," by Dr. H. H. Hume of Gainesville, Florida; "Ornamental Cherries," by Collingwood Ingram, (1948); and "Flora of Mount Rainier National Park," (1947) presented to us by the author, Mr. C. Frank Brockman, of the College of Forestry, University of Washington.

Miscellaneous

Collection of seeds for our annual seed exchange list with other Botanic Gardens has continued throughout the fall; the list will be published before the end of the year. Seeds of some unusual plants have been given us for this object from one or two private gardens in Seattle.

The large specimen of *Cornus Nuttallii,* the native West Coast dogwood, which stands at the head of Rhododendron Glen, flowered amply in September after failing to bloom in April-May. Last year it flowered at both seasons. Young plants are now being raised from it by grafting to discover whether this character is constant in other situations.

The nursery foreman, Lawrence Michaud, unfortunately fell off his home porch roof and broke a rib, but is now at work again. Several other members of the staff have been absent at different periods, affected with a gastric type of flu.

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Visitors since the end of August have included Dr. F. P. Cullinan, of the Bureau of Plant Industry, U. S. Dept. of Agriculture, Beltsville, accompanied by Dr. E. L. Reeves, of the U. S. D. A. Experiment Station at Wenatchee, Wash.; Mr. Riley Stevens, member of the National Shade Tree Conference, from Portland, Ore., and Mr. W. H. Johnson, of the Seattle office of the Snoqualmie National Forest, Wash., who brought with him M. Jean Pourtet, Inspector des Eaux et Forets, Nancy, France.

Mr. Leo Isaac, of the Pacific Northwest Forest Experiment Station, Portland, accompanied by Dr. W. E. Hiley, of Dartington Hall, Devon, and Dr. H. G. Champion, Imperial Forestry Institute, Oxford, England.

Mr. Herbert Moss, well-known Seattle rose-grower, brought Mr. Robert Pyle, president of the Conard-Pyle Nursery Co., of West Grove, Pennsylvania, on Sept. 25th.

The Edison School horticultural class, established at the Arboretum since the spring of 1946, has now been suspended indefinitely, owing to the continued small number of students. Until the end of September, 1948, Mr. Carol Wieting had been instructor; since that date Mr. Paul Brown was in charge.

The Christmas Rose

(Continued from Page 25)

Paris gardens, starts blooming. Its leaves grow upright and are a heavy, deep green. The flowers are long, sturdy-stemmed and cup-shaped.

February 15, the very lovely *Helleborus altifolius multiflorus,* developed by Borch of Maplewood, Oregon, begins to flower. Its buds are more pointed with a pink tinge and have two or more blossoms on each stem.

For many years we have tried in vain to have "Pierre Pachou" set seeds; however, Borch's plant always sets innumerable ones. One year we were extremely lucky in being able to cross-pollinate these two very fine plants and raised 52 seedlings. It is said that among the seedlings of the hellebore often much finer ones develop than either parent, and this proved to be true. Some are excep-

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tionally fine specimens and one is outstanding. "Pierre Pachou" blooms in November, *altifolius multiflorus* in February, and both have a tinge of pink but this one is pure white and come into bloom Christmas week. The flowers last for two months and last year this plant had a gorgeous bouquet of over 50 blossoms.

Hellebores require a rich, retentive loam, deeply dug with sand for drainage, mixed with leaf mold and well-rotted manure. They prefer to be planted under the shade of a deciduous tree or shrub in order to have summer shade and plenty of winter sun.

Most growers insist they resent moving. We have never found this to be the case. In our garden, we have always moved them in any season, even in midwinter, when an especially lovely plant was hidden from view. It is necessary to have a deeply prepared hole and to keep the plants moist. Divisions are best made in June when the plants are at their greatest vigor, as their roots penetrate deeply and need to build strong crowns before fall.

Plants are started like any perennial, but be sure to use fresh seeds as their vitality soon disappears. It often takes almost a year for seeds to germinate. Many gardeners let them drop under the plants, protecting the area, so that they may develop without difficulty. It takes three years for the plant to produce blooms.

In the summer, use plenty of peat around the roots to protect the plants from drying out. As a protection from strawberry weevil, apply "Go West" in the spring. To eliminate slugs, bait with Cory's slug-death in November. A top dressing of well-rotted cow manure and

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bonemeal is very helpful in the fall. NEVER cut hellebore leaves as they manufacture the food for the next flower crop. Just before the buds begin to form apply liquid manure to the surrounding soil and the flowers will show their appreciation by their added vigor, size of flower and length of blooming season.

In designing the garden it is wise to know that hellebores are difficult to handle with herbaceous material. The ideal place to plant them is in a wide shrub border in front of broad-leafed evergreens, provided they receive some summer shade. *Niger* and *orientalis* used in clumps make a charming edge.

Plants work in well with ground covers such as myrtle, Kinnikinnick *(Arctostaphylos uva-ursi)* and small ferns. Used with ferns they are very beautiful and some bulbs may be introduced with excellent results such as snowdrops, winter aconites or crocuses. One of the most attractive plantings is masses of *Helleborus niger* under the sweeping branches of the witch hazel, *Hamamelis japonica* or *H. mollis.* When they bloom in January, the yellow, feathery witch hazel is reflected in the yellow stamens of the white Christmas Rose.

Hellebores are very satisfactory as cut flowers and will keep from two to three weeks in the house. Before arranging in the container the blooms should be hardened by placing them into cold water for 24 hours in a cool place. If any droop, cut off the stem and add fresh water. Daily fresh water helps them to last longer.

Always remember to plant Christmas Roses where their beauty will be a bright spot viewed from the windows overlooking the garden during the dull winter days.

Yes, plant them where you may look out upon them as the dreary winter days come and go. The hellebore will capture your heart! Though death lurks in its black root, it lifts a face of such pure loveliness that men have given it the name of One who is the symbol of Life . . . Christmas Rose.

American Camellia Society

On September 29, 1945, representatives from six states met in Macon, Ga., and formally organized the society. It was chartered under the laws of Florida as a non-profit corporation, October 24, 1945.

Its purposes, as brought out in the charter, are as follows: "The purposes of this society shall be to promote interest in the genus *Camellia L.,* scientific research in its culture, standardization of its varietal names, certification of new varieties, dissemination of information concerning the above and to promote the organization and affiliation of local camellia societies in the United States."

A bound yearbook is published annually and news letters are sent out quarterly. Information concerning the society may be had from R. J. Wilmot, secretary, Box 2398 University Station, Gainesville, Fla.

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ARBORETUM NOTEBOOK

This department is published for correspondence and pertinent comments by experienced growers on interesting plants and their culture. We solicit your questions but space limitation necessitates the publishing of only such answers as we deem of general interest.

To those gardeners who feel the need of an edging plant may I commend *Erica carnea.* It begins to bloom near the turn of the year and its ruby colored blooms, shining through our dark January days, with its bright green foliage, are like a Christmas gift left over. Besides its beauty of foliage and bloom it has beauty of growth—low, compact, neat and restrained.

* * *

Azara microphylla is an evergreen tree that could be used more extensively in our Northwest gardens. As its name suggests, it has small, box-like, deep green, glossy leaves that are borne in pairs on long, graceful, spraying branches. The blooms, in February, are tiny, rather an inconspicuous, yellowish hue, with no petals but clusters of stamens. They, the flowers, have a very subtle, vanilla-like fragrance. The tree is native to Chile but seems hardy in our climate. Older trees are thought to be more susceptible to frost.

* * *

Iris reticulata is one of the true jewels of early spring: a bulbous iris which appears late in February or early March with none of the pale, achromatic colors one may expect before the sun is high in the sky, but with deep, brilliant violet and warm reddish orange flowers coming out of the brown earth with no foliage and rising to about six inches before it unfolds. The narrow leaves come after the flower has faded and then also die back. The bulbs should be planted in the fall about three inches deep in full sun and the place carefully marked to keep it safe from summer disturbance.

* * *

Here are the names of five very useful garden books:

1. "The Standard Cyclopedia of Horticulture," 3 Vols. L. H. Bailey.
2. "The English Flower Garden," Wm. Robinson.
3. "Rhododendrons & Azaleas," Clement Gray Bowers.
4. "Magnolias," J. G. Millais.
5. "The English Rock Garden." 2 Vols. Reginald Farrer.

ANON.

* * *

FAVORITE TREES AND SHRUBS

The *Viburnums;* in variety, but especially the fragrant *Carlesii,* the fragrant and evergreen hybrid *Burkwoodii,* and *V. Davidi,* compact, low growing, with porcelain-blue berries. Nor would one like to have a shrub planting without *V. Tinus,* the Laurustinus.

The *Camellias;* the fine varieties of *C. japonica,* but also the species *C. Sasanqua* for fall and early winter bloom. Flowering cherries, especially the white "Mt. Fuji," the rose pink "Fugenzo," and the single flowered *yedoensis* or "Yoshino."

Flowering crabapples; in particular *aldenhamensis,* with rose flowers, purple-red fruits, and reddish foliage; *arnoldiana,* with drooping branches and yellow fruits, and many others.

Rhododendrons; especially the new, large-flowered hybrids, but of equal importance are the species, to be planted by themselves, in woodland areas, in rockeries, many of them real jewels.

Azaleas; many fine new hybrids in all wanted shades.

Eucryphias; especially the large-flowered natural hybrid, *nymansensis, (glutinosa* x *cordifolia),* blooming in August.

Skimmia; beautiful evergreen shrub with shining scarlet berries; one of the best is *S. Foremanii,* or *S. Rogersii,* with self-fertilizing flowers.

Magnolias; especially the evergreen *M. grandiflora, M. stellata,* and the Yulan magnolia, *M. denudata.*

Dogwoods; especially our native *C. Nuttallii,* and also *C. florida,* both pink and white forms, and *C. Kousa,* a beautifully shaped small tree from Japan, with showy white flowers in June, red foliage in autumn, sometimes red, berry-like fruits.

Pieris; handsome evergreens, especially *P. Forrestii,* with beautifully colored spring foliage

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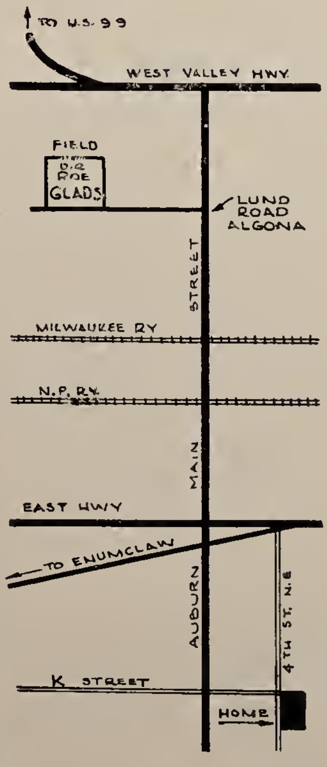

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Lilacs; in particular the handsome French hybrids, "Vestale," single white; "Lucie Baltet," single pink; "Firmament," bluish, and "Mme. Francisque Morel," purple red.

S. M. B.

* * *

The Vancouverias are charming woodland plants with a special appeal to West Coast gardeners because their original home is limited to Washington, Oregon and Northern California. In their native habitat they usually are found along the floors of densely shaded coniferous forests. The name, Vancouveria, commemorates the British seaman, George Vancouver, captain of the ship Discovery which surveyed the Pacific Coast of North America in 1792. The plant is said to have been collected by David Douglas in May, 1825, near Vancouver, Washington, where a Hudson's Bay Company fort had been located by Dr. McLaughlin.

There are only three species of Vancouveria, *V. hexandra, V. chrysantha* and *V. planipetala.* All have long-creeping rhizomes. The foliage is similar in all three; three-lobed leaves, the lobes varying somewhat in the three species.

V. hexandra has thin, deciduous leaves, bright-green above and glaucescent beneath. The pendulous flowers are white with reflexing sepals and petals suggesting its common name, "up-side-down flower." This species may be found in coniferous forests all along its original habitat. *V. hexandra,* perhaps, is the loveliest of the family with its graceful, airy manner of growth.

V. chrysantha is more or less evergreen with leaves darker green. The flowers are generally pale yellow but the color may vary in depth in varying locations. This species is confined in locality to the coastal mountains of Oregon.

V. planipetala may be slightly lower in height than the two other species and is found only from south of the Rogue River in Oregon to the Santa Lucia Mountains in California. *V. planipetala* is so nearly identical to *V. hexandra* that it has often been considered a synonym of *V. hexandra.* The color of the flower has been described as "white with a lavender tinge."

V. hexandra grows willingly and graciously in shady places in our gardens, spreading gradually but not insistently. It is a ground cover to be considered.

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Beauty-loving gardeners with slim pocketbooks need not despair if they are blessed with the gift of patience. Many of our loveliest shrubs, such as *Vaccinium vitis-idaea, Pernettya rupicola,* Heather, *Daboecia,* and many others are very easily propagated by layering. One plant may be developed into a mass planting of any size.

Plant the shrub properly, leaving a slight depression around it and place a layer of sand, about an inch thick, in the depression. Then hairpin down the outer layer of branches, covering with an inch of sand and leaving about an inch of each branch tip exposed.

In a remarkably short time tiny roots will form, when the branches may be severed and planted in their permanent places. Keep layering each outer layer of branches of the original shrub until you have as many plants as you wish.

Layering may be done at any time that the ground is not frozen.

Mrs. John Harisberger

* * *

Stokesia cyanea is a lovely perennial with lavender-blue, aster-like flowers which grows from one to two feet high. The flower has a flat, full head ranging from three to five inches across. It does not seem to be widely known here and perhaps you who do know it have been deterred from trying it because it is a native of South Carolina and Georgia, and considered a greenhouse subject by some gardeners. However, I have had it in my garden several years and it thrives beautifully in our climate. It makes a delightful showing in massed broad effects. Grown singly, as an accent in a late summer border, or if you need a bit of blue in your garden, it is equally delightful. It blooms from August through September. *Stokesia* likes a well drained sandy loam and is increased by division in spring or seeds sown in a greenhouse in February or in a coldframe in May. Its thick strong stems and leaves make it excellent in flower arrangements.

Mrs. John Nourse

The largest gift to the Cornell Plantations and the first bequest has been recorded in the agenda of the Cornell Board of Trustees. In the words of that agenda the record is as follows:

"Estate of John R. Armstrong: The Secretary reports receipt of a legacy in the amount of $14,527.82 from the estate. This is the first bequest received by the University for the Cornell Plantations."

John Rorick Armstrong was a particularly enthusiastic supporter of the Plantations idea, though he was not a graduate of Cornell.

* * *

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Sources for Camellia Plants, 1948

The Bulletin here presents a list of Pacific Coast nurseries and the varieties of camellias they offer. This list was prepared from information sent by the growers themselves at our request. Although a great many more than those included here were contacted, the list was necessarily limited to those whose replies reached us in time for the final date scheduled for publication.

The information is presented in two groups. Under List A, below, are the names and addresses of the nurseries, each with a key number preceding it. Under List B are the plant names, followed in each case by the key number of each grower who offers the specific variety for sale.

The Bulletin wishes to thank those nurseries who so graciously responded.

List A

1. Armstrong Nurseries, Ontario, Calif.
2. Bonnell Nuseries, Rt. 4, Box 90, Renton, Wash.
3. Bonneybrook Nursery, Rt. 2, Bothell, Wash.
4. Buckley Nursery Co., Buckley, Wash.
5. Campus Nursery Sales, 5000 25th Ave. N.E., Seattle 5, Wash.
6. Carter's Camellia Gardens, 525 E. Garvey Ave., Monterey Park, Calif.
7. W. B. Clarke & Co., San Jose, Calif.
8. Ferrill's Nursery, 1315 Chemawa Road, Salem, Oregon
9. Five Corners Nurseries, 15844 First Ave. S., Seattle, Wash.
10. Firth Nursery, 7244 Pacific Ave., Tacoma, Wash.
11. Hainke's Nursery, 519 N. 41st St., Seattle, Wash. (Mail address)
12. Lakamas Gardens, Rt. 1, Box A, Camas, Wash.
13. Lake Crescent Nursery, Star Rt. 1, Pt. Angeles, Wash.
14. Lakeshore Gardens, Rt. 1, Box 308, Bellevue, Wash.
15. Malmo Nurseries, 4700 25th Ave. N.E., Seattle, Wash.
16. Miethke's Nursery & Flower Shop, Rt. 2, Box 187. Tacoma, Wash.
17. Millard Henny, Box 159-B, Brooks, Oregon
18. Portland Camellia Gardens, 8117 S.W. Barnes Road, Portland, Oregon
19. Portland Camellia Nursery, 3307 N. Williams Ave., Portland, Oregon
20. Prentice Nursery & Decorating Co., 9252 E. Marginal Way, Seattle, Wash.
21. Puget Sound Nursery, 9201 Pacific Ave., Tacoma, Wash.
22. G. G. Ramsey, 6312 Seward Park Ave., Seattle, Wash.
23. The Rhododendron Nursery, 4229 S.E. Division St., Portland, Oregon
24. L. N. Roberson Co., 1540 E. 102nd St., Seattle, Wash.
25. State Flower Nursery, Inc., Rt. 2, Box 145, Bothell, Wash.
26. Strander Evergreen Nurseries, 13310 Interurban Ave. S., Seattle, Wash.
27. R. E. Tindall Nursery, Rt. 2, Box 100, Bothell, Wash.
28. Wedgwood Gardens (formerly Foster's Gardens), 7744 35th N.E., Seattle, Wash.

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